Eagle House
25 Memorial Drive
Lunenburg, MA 01462

Property Condition Assessment

February 23, 2018

PREPARED FOR:

Town of Lunenburg
17 Main Street, P.O. Box 135
Lunenburg, MA 01462

PREPARED BY:

The Vertex Companies, Inc.
400 Libbey Parkway
Weymouth, MA 02189

PHONE 781.952.6000

VERTEX Project No: 48237

February 23, 2018

Town of Lunenburg
17 Main Street, P.O. Box 135
Lunenburg, MA 01462
Attn: Heather R. Lemieux

Re: Property Condition Assessment
Eagle House
25 Memorial Drive
Lunenburg, MA 01462
VERTEX Project No. 48237

Dear Ms. Lemieux:

The Vertex Companies, Inc. (VERTEX) is pleased to submit this Property Condition Assessment (PCA) report for the above referenced property (the site).

Our work was conducted in general conformance with P.2489.17, dated September 29, 2017, and in general accordance with the provisions of ASTM E2018-15 (Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process) for commercial real estate.

Please do not hesitate to contact us at your convenience should you have any questions or comments regarding this report.

Sincerely,
The Vertex Companies, Inc.

Philip Russo, R.A.
Field Observer & Report Author
Project Manager

Matthew Quigley, PE
Field Observer & Report Author
Forensic Structural Engineer

Brian Dunn, AIA, NCARB
Field Observer/Author
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Report Reviewer
Vice President

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APPENDICES

1.0 EXECUTIVE SUMMARY

The VERTEX Companies, Inc. (VERTEX) performed a Property Condition Assessment (PCA) of Eagle House located at 25 Memorial Drive in Lunenburg, MA, on February 8, 2018. Overall, the property and improvements appeared to be in good to fair condition with respect to age, use and location.

A table of salient information associated with the project is presented below and utilized throughout this report.

SALIENT PROPERTY INFORMATION	
Property Name:	Eagle House
Location/Address:	25 Memorial Drive, Lunenburg, MA 01462
Construction Year(s):	1740/1998
Property Type:	Senior Community Center
Number of Units:	Not Applicable
Reported/provided Building Area (SF):	5,500 (Property Record Card)
Reported/provided Site Area (Acres):	1.79 (Building Department)
Surrounding Property Usage:	Retail, vacant land, agriculture, commercial, residential, recreational, educational
Utility Service:	
Gas:	National Grid
Electric:	Unitil
Water:	Lunenburg Water District
Sanitary:	Town of Lunenburg
Storm:	Town of Lunenburg

The "Quick Look Summary Checklist" presented on the following page, is intended to provide a general, objective* evaluation based on the issues identified at the property and their associated projected costs. Recognizing that the evaluation is general in nature, and subject to the limitations of the assessment as well as cost estimating accuracies, the Summary is simply calculated utilizing a modification of the recognized Facility Condition Index (FCI) utilized by many professionals to evaluate the condition of buildings or groups of buildings. For this assessment, issues identified (Immediate, ADA and Capital Needs) were categorized by building system in appropriate sections of the report and Cost Table 1. The sum of dollar values for these issues was

then divided by an estimated value for building replacement costs, weighted each building category. The following definitions were utilized for these ratings.

- **Good:** Aggregate of identified issues is less than 5% of total replacement costs estimated for the associated system.
- **Fair:** Aggregate of identified issues is greater than 5% and less than 10% of total replacement costs estimated for the associated system.
- **Poor:** Aggregate of identified issues is greater than 10% of total replacement costs estimated for the associated system.

**It is important to note that the ratings assigned in the Quick Look Summary are objective measures based solely on projected dollar amounts relative to total system replacement costs. These ratings may differ from our overall subjective opinion of the condition of the same system or category identified in the text descriptions and discussions in Section 5 of this report.*

"QUICK LOOK" PROJECT SUMMARY AND ESTIMATE OF PROJECTED COSTS

Site Name:	Eagle House	# Buildings:	1
Site Location:	Lunenburg , MA	Est. Bldg Area, SF:	5,500
Building Age, yrs:	178	Eval. Term, Yrs:	5
Building Type:	Municipal/Residential	Per SF replace cost:	$214

GENERAL CATEGORY	SUMMARY RATING G	F	P	NA	# Items	Immediate Needs Estimate	# Items	Capital Needs Est., Uninflated
SITE DEVELOPMENT	x				0	$0	2	$4,224
BUILDING STRUCTURE	x				0	$0	1	$7,500
BUILDING EXTERIOR	x				0	$0	1	$3,486
ROOF			x		1	$500	2	$40,675
BUILDING INTERIOR			x		1	$50,300	4	$51,315
MECHANICAL SYSTEMS		x			3	$5,842	3	$44,090
ELECTRICAL SYSTEMS	x				1	$4,000	0	$0
PLUMBING SYSTEMS			x		1	$5,415	0	$0
CONVEYANCE				x	0	$0	0	$0
LIFE SAFETY / FIRE PROTECT		x			2	$3,250	0	$0
ANCILLARY STRUCTURES				x	0	$0	0	$0
OVERALL RATING / TOTALS			x		**9**	**$69,307**	**13**	**$151,291**
ADA IMPROVEMENTS					2	$1,219		

This "Quick Look" Summary is intended to provide an overall picture of the number of identified and quantified issues at the subject property. The summary ratings above are objective, and are based on the aggregate estimated dollar amount for identified repairs associated with each category. The definitions used for these summary ratings are based on a modified Facility Condition Index (FCI) which is calculated by dividing aggregate costs for Immediate and Short Term Needs by a simply modeled replacement cost value weighted for each category and based on building type.

$$FCI = \frac{\text{(Immediate Needs + Short Term Needs*)}}{\text{Replacement Cost**}}$$

GOOD: 0 to 5 percent
FAIR: 5 to 10 percent
POOR: 10 to 100 percent

**Capital Needs identifed in Years 1 and 2 including ADA*
*** For each individual building category*

Overall Property FCI = 17%

2.0 PURPOSE AND SCOPE OF SERVICES

2.1 PURPOSE

The purpose of the Property Condition Assessment (PCA) was to observe and document readily visible material and building system defects that might significantly affect the value of the property. The PCA also assessed existing conditions that might have a significant impact on the continued operation of the facility during the requested term of assessment. The requested term of assessment for this report was five years.

It is understood that the Client is considering the appropriate renovation or re-use of the property described in this report. The report will be utilized to assist with planning decisions, as well as provide information for future capital planning.

Observations performed during the PCA were made without operational testing and/or removing or damaging components of the building systems. Consequently, some system specific assumptions were made regarding the existing conditions and operating performance of each system. Furthermore, recommendations developed for this report were based on information discovered during the PCA. If additional information is discovered concerning the facility, the assumptions, conclusions, and recommendations presented herein may require re-assessment.

The recommendations and opinions of cost provided in this report were also based on the understanding that the facility will continue to operate under similar use and occupancy as observed on the date of the site reconnaissance.

2.2 SCOPE OF SERVICES

The PCA included the following: site reconnaissance; limited interviews with property management and maintenance personnel; and a review of available construction documents as provided by the building management. Operational testing of building systems or components was not conducted. Although the building was visually reviewed for suspected hazardous materials, sampling was not conducted and thus, this PCA does not confirm the presence or absence of asbestos, polychlorinated biphenyls (PCBs), mold, or contaminated soils or groundwater on the property.

During the PCA, unless noted otherwise, VERTEX made visual observations of the following facility features: site development systems; building structure systems; building exterior systems;

building interior systems; roof systems; mechanical systems; electrical systems; plumbing systems; conveyance systems; and, life and fire safety systems.

VERTEX utilized ASTM E2018-15 as a guideline for the evaluation of the building. This recognized assessment protocol gives specific guidance for the condition assessment of buildings and provides a framework for an objective and repeatable methodology from an independent assessor.

2.3 REPORT RELIANCE

This report is intended for review as a complete document. Therefore, interpretations and conclusions drawn from the review of any individual section are the sole responsibility of the user.

2.4 DEVIATIONS FROM THE GUIDE

ASTM E2018-15 "Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process," was utilized as a guideline for the site visit and associated report preparation. ASTM requires that deviations from the guidelines be stated in the report.

The following items were not required by the ASTM standard but were provided as part of this PCA at the request of the client or as value added considerations.

- ★ The field observations were performed by registered professional staff
- ★ Determination of USGS Seismic Hazard and IRC Termite Zone
- ★ A Capital Needs Assessment with a term length of five-years was performed
- ★ A visual review of specific accessibility related issues and general compliance was performed

2.5 INACCESSIBLE AREAS / OBSERVATION LIMITATIONS

Representative observations were made at the facility in accordance with ASTM E2018-15. The following areas were not accessed, or access was limited during the site visit.

- ★ Roof (due to pitched conditions)
- ★ Landscaping (due to snow cover)

2.6 AREAS REVIEWED

Observations of the various systems, materials and building areas were performed as part of the site walk-through. Site observations of similar portions of the building or similar systems or materials were performed until, in VERTEX's professional opinion, a representative sampling was adequate for extrapolation to the remainder of the building.

3.0 REPORT INFORMATION

3.1 ASSESSMENT DEFINITIONS

GOOD: Material or building system was in average to above-average condition. Opinion is rendered with consideration to the item's type, age, design, and location. Generally, other than normal maintenance, no work is recommended or required.

FAIR: Material or building system was in average condition. Some work is required or recommended, primarily due to normal aging and wear of the building system, to return the system or material to a good condition.

POOR: Material or building system was in below average condition. Significant work is anticipated to return the building system or material to an acceptable condition.

Unless stated otherwise in this report, the material and building systems reviewed were considered to be in good condition and their performance appeared to be satisfactory.

3.2 COMMON ABBREVIATIONS/ACRONYMS

ALEC	Aluminized Emulsion Coating	**HP**	Horse Power
AC	Alternating Current	**HVAC**	Heating Ventilation & Air Conditioning
ASHRAE	American Society of Heating, Refrigeration & Air Conditioning Engineers	**IN**	Inches
		IRMA	Inverted Roof Membrane Assembly
A/V	Audio Visual Device	**KVA**	Kilo-volt Amp
BLDG	Building	**KW**	Kilowatt
BOCA	Building Officials & Code Administrators (Building Code)	**LF**	Linear Feet
		LS	Lump Sum
BTU	British Thermal Unit (HVAC / MEP)	**MBH**	1,000 BTUs per Hour
BUR	Built-Up-Roof	**MEP**	Mechanical, Electrical, Plumbing
CF	Cubic Feet	**MIL**	1/1000th of an inch
CIP	Cast Iron Pipe	**MP**	Manual Pull Station (fire alarm)
CMP	Corrugated Metal Pipe	**PSI**	Pounds per square inch
CMU	Concrete Masonry Unit	**PVC**	Poly-Vinyl-Chloride (pipe)
CY	Cubic Yard	**QA/QC**	Quality Assurance/Quality Control
DC	Direct Current	**RCP**	Reinforced Concrete Pipe
DIP	Ductile Iron Pipe	**RUL**	Remaining Useful Life
DM	Deferred Maintenance	**SOG**	Slab-on-grade
DX	Direct Expansion (air conditioning)	**SF**	Square feet
EIFS	Exterior Insulation & Finish System	**SY**	Square Yard
EMS	Energy Management System	**TN**	Ton (12,000 BTU cooling, HVAC)
EPDM	Ethylene-Propylene-Diene-polymer-Monomer ("rubber" roofing)	**UBC**	Uniform Building Code
		VAT	Vinyl Asbestos Tile
EUL	Estimated Useful life	**VAV**	Variable Air Volume (HVAC)
FT	Feet	**VCT**	Vinyl Composition Tile
HID	High Intensity Discharge (lighting)	**VWC**	Vinyl Wall Covering

3.3 REPORT TENSE

This report was prepared in the past tense as it is intended to only describe observed conditions at the time of the site reconnaissance.

3.4 OPINIONS OF COST

The cost tables associated with the PCA include total amounts for *Immediate Repair* items, *Short-Term Repair* items, and *Capital Needs*. A separate cost table (Table 2) is provided to address accessibility issues.

Immediate Repair items are defined as physical deficiencies that cannot be remedied with routine maintenance, normal operating maintenance, etc., excluding de minimis conditions that generally do not present a material physical deficiency to the subject property. Immediate Repair items are typically considered to be: (1) material existing or potential unsafe conditions resultant from damage or deterioration (2) material building or fire code violations as revealed by municipal agencies; or (3) conditions that if left un-remedied have the potential to result in or contribute to critical element or system failure within one year or will result most probably in a significant escalation of its remedial cost.

Short-Term Repairs are defined as physical deficiencies, such as deferred maintenance, that may not warrant immediate attention, but require repairs or replacements that should be undertaken on a priority basis in addition to routine preventative maintenance. In some cases, Short-Term repairs may include recommendations for testing, exploratory probing, and/or further analysis. Generally, the expected time frame for Short-Term Repairs is within one to two years.

Capital Needs are those items of a capital nature which are expected to require repair, renovation or replacement during the requested evaluation term, in this case five years.

ADA/MAAB Items are those items that would be required to upgrade or update existing systems to provide improved accommodations for handicapped persons.

The opinions of cost presented herein were based on readily visible material and building system defects that might significantly affect the value of the property during the requested assessment term. These opinions were based on approximate quantities and values, and do not constitute a warranty or guarantee that all item(s) requiring repair were included. The estimated costs developed in this report were for the aforementioned Immediate Repair items, Short-Term

Repair items, Capital Needs and ADA/MAAB items. Items not incorporated into the cost tables include operational costs, such as landscaping maintenance and utility (gas or electricity) usage, unpredictable (aesthetic) upgrades, or normal operation and maintenance. The availability of parts or qualified personnel for repairs or renovations may be limited and is not factored into cost estimates unless specifically stated.

Estimated costs were developed with published unit price data and industry experience as summarized below.

Estimating/Quantity Take Off: Costs for selected items were estimated based on provided documentation, general calculations of capacity, area, size or other item features, and VERTEX's experience with buildings of similar size, construction and geographic location.

Like-with-Like Replacement: This assessment was not an attempt to design or address future programming needs, but rather an objective, independent assessment of the current condition of the buildings with a focus on repair, renovation or replacement of building materials, components or systems that have reached or are expected to reach the end of their useful lives in the next five (5) years.

Primary Estimating Source: RS Means 2017 Commercial Cost Renovation Data was utilized as the primary resource and some costs were modified based on our local experience. Unit costs were standardized for the geographic area and for prevailing wage rates and a percentage escalation was added for uncertainty.

It is important to understand that actual costs will vary depending on such factors as contractor expertise, previous contractor commitment, seasonal workload, insurance and bonding, and local labor conditions. These factors may cause wide variations in the actual costs as estimated by different bidders. In addition, since some projected projects may not require general contracting or significant design, GC soft costs (overhead & profit, bond and insurance, general conditions), design fees, owners project management fees and other potential fees are not included in these estimates. In view of these limitations, the costs presented herein should be considered "order of magnitude" estimates and used for preliminary budgeting purposes only. Preparation of scopes of work and contractor bidding are recommended to forecast actual costs.

3.5 ACTIVE CONSTRUCTION

The building was complete, and areas of active construction were not observed during the on-site visit.

4.0 ASSESSMENT INFORMATION

4.1 GENERAL SUMMARY

The VERTEX Companies, Inc. (VERTEX) performed a Property Condition Assessment (PCA) of Eagle House located at 25 Memorial Drive in Lunenburg, MA, on February 8, 2018. Overall, the property and improvements appeared to be in good to fair condition with respect to age, use and location.

In our opinion, the Site Contact (Owner's Representative) was fully familiar with the building's operation, condition and associated systems. Our conclusions are based on our visual observations, statements by on-site personnel, review of available records, and limited documentation obtained during the course of follow-up research.

4.2 SITE RECONNAISSANCE

The site reconnaissance portion of the PCA was performed on December 13, 2017, by Philip Russo, R.A., Matthew Quigley, PE., Jason Mohre, Brian Dunn, AIA, NCARB and Scott Katzer, PE., CFEI, all of VERTEX. Weather conditions during the site reconnaissance were as follows:

On-site Date	Weather Description	Average Temp.
February 8, 2018	Sunny	34° F

The following building features were assessed, if applicable.

- Exterior Site Elements
- Building Structure System
- Building Exterior System
- Roof System
- Mechanical System
- Electrical System
- Plumbing System
- Building Interior System
- Life & Fire Safety System
- Conveyance System

4.3 BUILDING HISTORY

According to the Site Contact, the building was originally constructed for residential use in 1740 and re-located to its current site in 1937-1938. In 1998, the building received an addition (approximately 4,000 square feet) and was extensively renovated and converted into its current use as a Senior Community Center. Reportedly, the building is listed on the National Register of Historic Places. It is our understanding that significant capital improvements and/or major repairs at the site have been generally limited to furnace replacements in the 1998 section of the building

totaling $15,000 in 2018, and exterior painting of the original section of the building totaling $18,000 in 2017.

4.4 INTERVIEWS

Interviews were conducted with personnel familiar with the facility to obtain information relative to the condition of the various building systems. Information obtained during the interviews has been incorporated into this report in the applicable sections. The following individuals or agencies were interviewed or contacted.

- Jack Rodriquenz, DPW Director, Town of Lunenburg (Site Contact)
- Adam Burney, Land Use Director, Town of Lunenburg
- John Londa, Director of Facilities, Town of Lunenburg
- Jim Breault, Facilities Manager, Town of Lunenburg
- Susan Doherty, Director, Lunenburg Council on Aging
- Lisa Normandin, Administrative Assistant, Building Department, Town of Lunenburg

4.5 PRE-SURVEY QUESTIONNAIRE AND REQUEST FOR DOCUMENTATION

Due to ownership of the building and property by the municipality, VERTEX opted not to issue a Pre-Survey Questionnaire and Request for Documentation (PSQ). Information relating to the property history was obtained from other sources as documented in this report.

4.6 DOCUMENTS

The following documents were provided or discovered during VERTEX's research of the property history.

Description	Author	Date	Reviewed	
			No copy obtained	Copy obtained
Flood Insurance Rate Map (Community Panel # 2503150005B)	Federal Emergency Management Agency	June 15, 1982		✓
Building Assessment & Space Needs Study	Tappe Architects	January 11, 2016		✓

4.7 MUNICIPAL RESEARCH & CODE COMPLIANCE

A detailed analysis of whether or not the building and site is compliance with current codes was not performed as part of this assessment. Code compliance research and evaluation was limited to the following.

a) Visual observation of materials, components or systems that due to obvious deterioration or damage have resulted in an unsafe condition. Such conditions must have been visible without probing, dismantling or uncovering or unblocking access, and must not have required specialized knowledge of any particular code or any measurement or calculation for dimensional, clearance, or other compliance.

b) Issues of unsafe conditions related to visual deterioration or damage, if observed, are identified and discussed in the various sections of this report specific to the material, component or system.

4.8 SITE CHARACTERISTICS

General site characteristics including site topography, flood zone, seismic considerations, and termite considerations are tabulated and discussed below.

Topography

In general, the property sloped downward from the north to the south. Grass covered slopes defined grade changes in selected locations.

Flood Zone

VERTEX visually plotted the general property location on FEMA Flood Insurance Rate Map. This should not be considered a flood zone certification. Actual determination of flood zones should be performed by a registered surveyor.

Subject Property Flood Zone: Zone C, defined as an area of minimal flooding.

Seismic Considerations

The probability of ground damaging motion within each Seismic Zone is defined below based on the Seismic Zone Map in Figure A, (1997 Uniform Building Code).

Figure A: Seismic Zone Map of the United States
(UBC—1997 Edition)

- (0 or 1) low probability
- (2A) low to moderate probability
- (2B) moderate probability
- (3) moderate to high probability
- (4) high probability

While there are more recent seismic risk maps, they generally require specific information on the seismic response characteristics of the site and structure. For ease and consistency, and comparision with previous standards, the ASTM standards associated with Probable Maximum Loss (PML) seismic studies, rely on this 1997 map.
The subject property for this evaluation was located in Seismic Zone:

2A

In general terms, those properties located in Zones 3 and 4 have a greater risk of ground damaging motion, and PML studies are typically recommended in these zones. Based on the property location, a PML is not recommended for this site.

Termite Considerations

Termite Zones identified in the 2000 International Residential Code (IRC) are shown in Figure B. Based on the general location, the subject property is located in the following Termite Infestation Region:

Moderate to Heavy

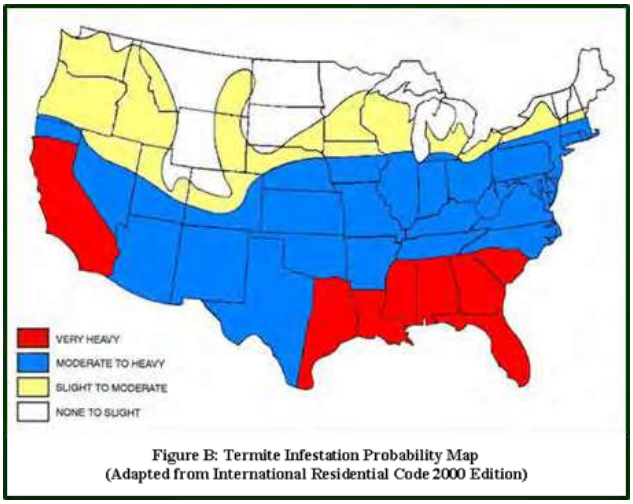

Figure B: Termite Infestation Probability Map
(Adapted from International Residential Code 2000 Edition)

The foundation and exterior walls of the building are constructed with concrete, steel, masonry and glass, which may serve to minimize the risk of building damage due to wood destroying insects.

We did not observe evidence of wood destroying insect activity, and none was reported; however, in the event that certification of the absence or present of termite activity is required, a licensed pest inspection professional should be engaged to perform a formal survey.

4.9 CLIENT SPECIFIC INFORMATION

This assessment was performed in accordance with ASTM E2018-15 and no specific client concerns or protocols were addressed that are not already discussed elsewhere in this report.

5.0 SYSTEM DESCRIPTION AND CONDITION

The following sub-sections describe the major building systems as observed during the PCA. Comments and/or recommendations offered by VERTEX regarding each system are presented immediately after each description in italic print. Each deficiency is assigned an item number and is cross-referenced in Table 1. Numbered photographs are presented in Appendix A and cross-referenced in Table 1.

5.1 SITE IMPROVEMENTS

Site development systems are those that relate to geographic features of the property and surrounding area, and improvements that serve ancillary roles for the facility. Components of the observed site development systems included paving and parking, sidewalks, retaining walls and fencing, signage, loading docks and dumpster areas, irrigation systems, site lighting and utilities, landscaping, and surface drainage. Operational testing of site development components was not conducted. Clear lines of property demarcation were not provided and as such, our observations relating to the site grounds and surrounding amenities are to be considered approximate.

SITE IMPROVEMENTS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Site Access	The site was accessed from the north side of Memorial Drive. The site was easily accessible from major area roadways. The site was located within five miles of Route 2.	G	
Parking	Parking was provided on open surface lots on the south side of the building. Painted striping was provided to delineate parking stalls and directional markings. The site had a reported total of nine surface parking spaces, two of which were specifically designated for handicapped use.	G	
Asphalt Pavements	The parking lots, driving lanes and access roads serving the property were constructed with asphalt. Information relating to the materials and thicknesses utilized in the construction of the pavement section was not available.	G to F	

<table>
<tr><th colspan="4">SITE IMPROVEMENTS</th></tr>
<tr><th>Item</th><th>Description of System or Component</th><th>Overall G, F, P</th><th>Cost Item #</th></tr>
<tr><td></td><td>
In general terms, the asphalt pavement areas appeared to be in good to fair condition. We observed the following types of deterioration in relation to <u>asphalt pavement conditions.</u>
<table>
<tr><th colspan="6">Observed ASPHALT Pavement Deficiencies</th></tr>
<tr><td>X</td><td>Surface Weathering</td><td></td><td>Potholes</td><td>X</td><td>Transverse Cracks</td></tr>
<tr><td></td><td>Loss of Aggregate</td><td></td><td>Rutting</td><td>X</td><td>Longitudinal Cracks</td></tr>
<tr><td>X</td><td>Map Cracking</td><td></td><td>Alligator Cracking</td><td>X</td><td>Random Cracks</td></tr>
<tr><td></td><td>Birdbaths</td><td></td><td>Heaving</td><td></td><td>Vegetation Growth</td></tr>
<tr><td colspan="6">Conditions Observed were: Minor</td></tr>
<tr><td colspan="6">Extent of observed deficiencies: Scattered Locations</td></tr>
</table>
We did not observe any asphalt conditions that appeared to require immediate repairs; however, longer term repairs and asphalt pavement renovations should be expected during the evaluation term. Budgetary allowances and forecasts for implementation are included in Table 1.
</td><td></td><td>1, 2</td></tr>
<tr><td>Concrete Pavements</td><td>Not Applicable.</td><td>N/A</td><td></td></tr>
<tr><td>Sidewalks</td><td>The property was snow covered at the time of our assessment. A few areas of exposed sidewalk were observed and indicated areas of cast-in-place concrete, brick pavers and some composite wood duckboards at the sides of the building.

The observed sidewalks appeared to be in good overall condition requiring routine cleaning, repairs and maintenance during the evaluation term.</td><td>G</td><td></td></tr>
</table>

SITE IMPROVEMENTS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Curbs	Concrete curbing was installed at the sidewalk/parking lot interface. *The curbing appeared to be in good overall condition requiring routine maintenance during the evaluation term.*	G	
Fencing	Not Applicable.	N/A	
Retaining Walls	Not Applicable.	N/A	
Drainage	The building roof areas and landscaped areas drained into the landscaping. Open parking surfaces drained to an underground, on-site storm drainage collection system that discharged to the municipal storm water management system. *Rooftop drain discharges, inlets and drainage collection structures were visible, free from debris, and appeared to be in good overall condition. Regular inspection and maintenance of drainage components and clearing of the inlets and drainage paths will be required during the evaluation term as part of routine maintenance.*	G	
Utilities	Electric, water, and storm sewer services were provided to the site. • Water provider: Lunenburg Water District • Electric provider: Unitil • Natural gas provider: National Grid • Sanitary sewer provider: Town of Lunenburg • Storm sewer provider: Town of Lunenburg	G	
Exterior Lighting	Lighting was provided at the sides and rear of the building. Observed fixtures consisted of wall-mounted units located above the secondary entrance doors.	G	

SITE IMPROVEMENTS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	The site lighting fixtures appeared to be in good overall condition. VERTEX did not visit the site at night to observe the operation of the site lighting.		
Landscaping	The property was snow covered at the time of our assessment. A few areas of exposed landscaping were observed and indicated areas of grass and shrubs along the perimeter of the building. *Where exposed, the observed landscaping elements appeared to be in good overall condition and were well-maintained.*	G	
Recreational Facilities	The property included two shuffle board courts located at the rear lawn of the building. There were several raised planting beds. The beds were constructed of heavy timber construction and located at the rear of the property. The rear yard included a metal bench and a wood swing. *The observed recreational/landscaping elements appeared to be in good overall condition and were well-maintained.*	G	

5.2 BUILDING STRUCTURE

Structural issues are related to those building components that transfer loads within a building and to the underlying ground. Loads may be the result of constant forces such as the weight of the building or other stationary objects within the building (dead loads), or variable forces such as people, operational equipment, vehicular activity or wind (live loads). The building structure assessment included the review of available geotechnical reports and drawings depicting the foundation, floor slab, and framing systems. Visual observations of exposed features were also performed when possible.

BUILDING STRUCTURE & SHELL			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Foundations	Foundation drawings or information relating to the building foundations were not provided for our review. The building consists of an original 1740's section and an addition reportedly added in 1998. Based on our experience with buildings of similar type, size and geographical locations, it is assumed that the building addition was founded on conventional spread and continuous wall footings. The original building section contained a basement with exposed concrete foundation walls. The foundation walls were not part of the original construction and were added below the building at some point in the past. *No visual indications of significant foundation failure or visual evidence of significant settlement were observed. No evidence of past water intrusion or evidence of significant water damage was identified during VERTEX's on-site visit.*	G	
Floors	The building was constructed with a cast-in-place concrete floor slab at the grade level (building addition) and basement level (original building). The upper floors consisted of wood framed construction. The floor framing size, layout and spacing could not be determined due to hard finishes. In the basement, we observed joist hangers and dimensional lumber indicating the first floor of the original section had been reframed at some point in the past. The joist hangers and dimensional lumber would not have been original to the building. *The floor slabs appeared to be in good condition with no evidence of significant deterioration or failure. In most areas, the floor slab surfaces were concealed by flooring finishes; however, floors appeared to be level and stable in observed locations.*	G	

BUILDING STRUCTURE & SHELL			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Super-structure	Based on our limited observation of exposed structural elements, the building structure consisted of primarily wood framing elements, with a cast-in-place concrete floor slab at the lowest level. The building addition roof consisted of plywood decking supported by rafter framing. The original building roof consisted of plywood installed over wood planking supported by a conventional rafter framing system. Maintenance personnel indicated the plywood decking was installed over the original wood planking during the last roof replacement. *Visible portions of the building slabs and superstructure appeared to be in good condition. Observed floors appeared to be level and stable with no obvious evidence of structural failure. Observed columns appeared to be plumb and free from visible impact damage.* *In the original section of the building, we observed several rafters that were discontinuous, did not extend to the ridge and/or eave and were unsupported. The roof framing system appears to have been modified in the past including the installation of wood posts below each rafter to provide vertical support. From the exterior, we noted one section of the ridge was sloped down toward a valley. With a typical roof rafter system, the rafters bear on the exterior wall and extend up to a ridge board or meet the rafter on the opposite side. The ridge board does not provide vertical support for the rafters. The roof load transfers through the decking into the rafters and onto the exterior walls. Where the rafters do not extend to the roof eave, the load transfers through the 2x4 posts bearing on attic floor framing. Aside from the sloped ridge, we did not observe evidence of overloading on the attic floor or exterior walls; however, we recommend additional rafters be installed continuous from eave to ridge to prevent potential issues in the future. An allowance to repair roof framing is included in Table 1.*	F	3

5.3 BUILDING EXTERIOR

Building exteriors are typically composed of various systems and materials intended to serve three main purposes: (1) aesthetic appeal; (2) weather resistance; and, (3) structural support. Items included in the building exterior assessment include wall assembly, glass and glazing, doors, and sealant.

BUILDING EXTERIOR			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Wall Assembly	The building is compromised of the original house that was moved to the site in the 1930's and a one-story addition that was constructed in 1998. Revisions were made to the original structure in 1991. The original portion was clad with wood siding and trim, and the addition was clad with vinyl siding and vinyl trim. According to the Site Contact the building was last painted in the Fall of 2017. *The observed wall assemblies appeared to be in good condition. We did not observe any significant areas of damage or deterioration and evidence of wall leakage was not reported or observed at the interior.*	G	
Sealants	Caulking was observed at exterior window and door penetrations. *Observed caulk joints at wall penetrations (window and door openings) appeared to be flexible and smooth; however, the caulk appeared to be somewhat discolored and chalky in texture. Due to the estimated RUL of the sealants, replacement should be anticipated during the evaluation term. A budgetary estimate of cost is included in Table 1.*	F	4
Windows	The building windows typically were operable, double-hung units with insulated glass set in vinyl frames. At the Lobby area there were large fixed vinyl clad units serving as a window wall in that location. *The windows appeared to be in generally good condition with no leaks reported or observed at the time of the site visit.*	G	

BUILDING EXTERIOR			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Exterior Doors	The main entrance doors to the building were wood swing doors with full glass vision panels set in wood frames. The main entrance door was equipped with an automatic opener at each door in the vestibule controlled by a switch pad. The secondary doors throughout the building were wood framed and typically had half or full vision panels. *The doors appeared to be in good condition requiring routine repairs and maintenance during the evaluation term.*	G	
Truck Docks	Not Applicable.	N/A	
Exterior Stairs	Exterior stairs were observed at the east facade and were constructed of wood assemblies with open risers and wood handrails. *The exterior stairs appeared to be in good condition requiring routine repairs and maintenance during the evaluation term.*	G	
Balconies	Not Applicable.	N/A	

5.4 ROOF

The purpose of roof system(s) is to protect the building components and occupants from adverse moisture, temperature, collapse, and other unwanted elements. The selection, design, and installation of a roof are critical to a building's financial performance and can be one of the most expensive building systems to repair, maintain, and replace. Items included in the roof assessment include roof type, age, drainage, warranty status, ancillary roofs, skylights, and roof accessories.

ROOF			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Roof Covering	Pitched roofs were not accessed by VERTEX. As a result, we used information gained from aerial photographs, observations from the ground, building interior observations, and information provided from the Site Contact to assess the roof conditions. Pitched roofs at the building were supported with wood rafters. The roof covering consisted of asphalt composition shingles at both the original and addition structures. The addition appeared to have metal flashing at the pipe penetrations. The flashing at the exhaust vent at the Kitchen could not be inspected due to the ice and snow coverage. There appeared to be metal flashing at the porch roof and wall intersection at the original structure. We requested a copy of the warranty, but none had been provided at the time of this report. Any active warranties should be provided, so that transfer provisions and warranty limitations can be reviewed. *We observed an active leak at the following location:* • Below the gable dormer at the Main Entry see below for more information. According to the Site Contact the roof at the original structure is 10 years old and the roof at the addition is the original roof from 1998. There is a recurring issue of ice damming at the eaves flanking the Main Entry. VERTEX observed heat trace at the eaves on the south façade of the addition. While the eaves themselves were covered with snow and ice, in general the roof shingles appeared to be in good condition given their age and expected useful life. What could not be confirmed was the presence of ice and water shield at the location of the ice damming and the heat trace. *The roofing at the original structure appeared to be in good overall condition.* VERTEX did observe staining in the second-floor closet ceiling on the west side of the original building. The location is in the	G to F	

ROOF			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	vicinity of the gable dormer valley on that side. While the exact source of the staining is unknown at this time. *A budgetary allowance for leak investigation and repair is included in Table 1 as an item of Immediate Repair.* *Above the Main Entry is a gable dormer that accents the corner condition and designates the entry door. Based on evidence of water infiltration above the entry door vestibule and in the ceiling of the Lobby it appears that water is infiltrating the roof assembly in this location. According to the Site Contact there has been a history of water infiltration and ice damming at the eaves in this location. VERTEX recommends over framing to build a dormer designed to eliminate the condition that is causing water infiltration due to the convergence of roof slopes. An estimated cost for this item is included in Table 1.* *The asphalt shingle roofing at the addition appeared to be in fair condition. Based on the age, observed condition and estimated RUL of the roof covering, replacement should be expected during the evaluation term. An estimated cost for this item is included in Table 1.*		6 5 7
Roof Drainage	The roof was equipped with perimeter gutters and downspouts, which discharged to the landscaped areas at the base of the exterior walls, and with direct discharge into the storm water management system through underground piping. *The roof drains appeared to be functioning adequately. Ponding water or evidence of significant ponded areas was not observed on the roof.*	G	
Skylights & Roof Accessories	Not Applicable.	N/A	

ROOF			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Roof Access	Not Applicable.	N/A	
Ancillary Roofs	The porch roof had asphalt composition roofing shingles. *The roof coverings at the porch appeared to be in good overall condition. No active leaks or evidence of chronic historical leaking issues was observed. Significant repairs or replacements for the roof covering are not expected during the evaluation term.*	G	
Roof evaluations should be conducted by a professional roofing inspector on an annual basis and corrective or preventative repairs should be made accordingly. A qualified inspector will be the best judge of the need to recover/replace the roofs and the specific timing associated with such actions.			

5.5 BUILDING INTERIOR

Building interior systems are those that relate to the visible features of finished rooms, hallways, common areas, service areas, tenant spaces, stairwells and restrooms. Items included in the interior assessment are the floor, wall, ceiling, stair and restroom finishes.

BUILDING INTERIOR			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Public Areas	Public areas at the building included corridors, lobby, reception area and entrance vestibule. Public area interior finishes at the building included a mixture of the following. **Floor Coverings**: Carpet, resilient tile **Wall Coverings:** Painted drywall	G to F	

BUILDING INTERIOR			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	Ceiling Coverings: Painted drywall, suspended grid with drop-in tiles *The interior components within the Public Areas appeared to be in generally good to fair overall condition. However, based on the age and condition of the finishes, renovation should be expected during the evaluation term including replacement of carpet and resilient tile flooring and re-painting of walls and ceilings.*		8, 9, 10, 11
Kitchens	The building included two kitchens, one serving the large Meeting Room and a smaller kitchen serving the Game-Library Room. The kitchens contained wood and laminate cabinetry and laminate countertops with stainless steel drop-in sinks. The kitchen serving the large Meeting Room had resilient floor tile and suspended acoustical ceiling systems. It was equipped with a gas stove with an exhaust hood, dishwasher, refrigerator, microwave and stainless-steel steam table. The kitchen serving the Game-Library Room had resilient floor tile and painted gypsum board ceiling. It was equipped with an electric stove, refrigerator and microwave. *The observed cabinets, countertops and flooring appeared to be in generally good to fair condition. However, based on the age and condition of the finishes, renovation should be expected during the evaluation term including replacement of resilient tile flooring and re-painting of walls and ceilings.*	G to F	8, 9, 10, 11
Game-Library Room	Finishes in the Game-Library Room typically were resilient tile floors, painted gypsum board walls with exposed and stained heavy timber, and painted gypsum board ceilings. *The interior components within the Game-Library Room appeared to be in generally good to fair overall condition. However, based on the age and condition of the finishes, renovation should be expected during the evaluation term*	G to F	8, 9, 10, 11

BUILDING INTERIOR			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	including replacement of resilient tile flooring and re-painting of walls and ceilings.		
Meeting Room	Finishes in the Meeting Room typically were resilient tile floor, painted gypsum board walls and a stained board cathedral ceiling. *The interior components within the Meeting Room appeared to be in generally good to fair overall condition. However, based on the age and condition of the finishes, renovation should be expected during the evaluation term including replacement of resilient tile flooring and re-painting/re-staining of walls and ceilings.*	G to F	8, 9, 10, 11
Computer Room	Finishes in the Computer Room typically were carpet flooring, painted gypsum board walls, and ceiling. *The interior components within the Computer Room appeared to be in generally good to fair condition. However, based on the age and condition of the finishes, renovation should be expected during the evaluation term including replacement of carpet flooring and re-painting of walls and ceilings.*	G to F	8, 9, 10, 11
Stairs	Observed stairs were constructed with wood assemblies with closed risers and painted wood handrails. The stairwells typically had painted gypsum board walls and carpet at treads and risers. *The interior components within the stairways appeared to be in generally good to fair condition. However, based on the age and condition of the finishes, renovation should be expected during the evaluation term including replacement of carpet and re-painting of walls and ceilings.*	F	8, 9, 10, 11
Public Restrooms	Typical restroom finishes at the building included resilient tile flooring, painted plaster walls and ceilings.	F	

BUILDING INTERIOR			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	The restrooms appeared to be in fair condition. However, based on the age and condition of the finishes, renovation should be expected during the evaluation term including replacement of resilient tile flooring and re-painting of walls and ceilings. .		9, 10, 11
Hazardous Material Considerations	As part of this assessment, VERTEX conducted a general, visual survey for hazardous materials. The findings of that assessment are included in a letter report attached in Appendix C. *The letter report provides some general order of magnitude costs for next steps and actions that will be required prior to renovations. The aggregate sum of these items is included in Table 1 as an Immediate Repair.*	N/A	12

5.6 MECHANICAL SYSTEMS

The mechanical systems evaluated include the readily visible components of the heating, ventilation, and air conditioning (HVAC) equipment. The evaluation was intended to be a general overview of the component type, equipment capacity, and distribution methods. Operational testing of mechanical systems was not conducted. Specific equipment included air conditioning and heating units, distribution and ventilation mechanisms, boilers (where applicable), and facility controls.

MECHANICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Air Conditioning	The building was air-conditioned by four (4) split system interior air handling units (AHUs) with ground-mounted air-cooled condensing units. The condensing units were manufactured by York in 1997. Three (3) of the condensing units each had an	G to F	

MECHANICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	estimated rated cooling capacity of 5 tons and the fourth condensing unit had a rated cooling capacity of 4 tons. The air handling units were each gas-fired units with DX coils manufactured by American Standard/Trane with the exception of one (1) unit manufactured by Central Environmental Systems (CES). The American Standard/Trane units were horizontal units located in the 1st floor attic space and served the 1998 addition of the first floor. The CES unit was a horizontal unit located in the 2nd floor attic space and served the 2nd floor of the 1998 addition. The American Standard units were manufactured in 2017. The CES air handling unit was manufactured in 1997. The air handling units did not have the refrigerant piping connected to the respective units at the time of our site visit. According to the Site Contact, this work is anticipated to be completed within the next few months of 2018. Supplemental cooling of selected spaces primarily within the original building was provided by through three (3) ductless split system units with remote air-cooled condensers manufactured by Mitsubishi and Sanyo. The condensing units were located on grade and each had estimated cooling capacities of ¾-tons. These units were manufactured in 1997. Condensate generated by the indoor AHUs were collected in a pan under the evaporator coil and discharged into a common condensate drain PVC pipe located within the attic of the building. This PVC condensate drain pipe discharged to the exterior of the building. Secondary condensate drain pans were located under the respective AHUs and each provided with a water flow sensor which would shut down the respective AHU upon sensing water within the secondary drain pan. Condensate from the ductless AHUs were piped to a condensate pump and discharged into the same PVC condensate drain line.		

MECHANICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	Condensate from the AHUs was not appropriately managed as no condensate drain traps were provided at the respective AHUs. In addition, the condensate drain piping from the respective AHUs were piped into an open drain hub located within the attic space which has the potential to leak into the attic space should a backup occur. Renovation of condensate is required, and a budgetary allowance is included in Table 1 as an Immediate Repair.		13
	The observed interior furnace units and associated condensing units we observed appeared to be in good to fair condition. Replacement of equipment should be anticipated as the various equipment reaches the end of their useful life. The split systems utilize R-22 refrigerants, which will cease production in January 2020. Replacement of the condensing units will also require replacement of the evaporator coil within the interior air handler and possibly the line sets connecting the indoor and outdoor components. Based on the observed conditions, types of refrigerant and anticipated system modifications, we have budgeted for replacement of both the AHUs and condensing units during the evaluation term. Allowances for replacement are included in Table 1, recognizing that costs may vary depending on refrigerant types chosen and line set sizes, piping types and configuration.		14
	The control panel cover was not installed on the 2nd floor AHU (CES) allowing the internal wires to be exposed. The cover on this unit should be secured in place. This is considered an item of Routine Maintenance.		
Heating	The primary heating source for the 1989 building addition included a series of conventional gas fired air handling units.	G to F	

MECHANICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	In addition, the building included hot water baseboard radiators located at the perimeter of the various spaces which served areas of the original building. Hot water delivered to the radiators was produced by a gas-fired boiler located in the basement. The boiler was manufactured by Burnham and had a rated input capacity of 198 MBH. The boiler was reportedly manufactured in 1997**.** *The condition of the AHUs is discussed above in Section 5.6, Mechanical Systems, Air-Conditioning.* *The boiler and associated hot water baseboard radiators appeared to be in good to fair condition. Due to the age and estimated RUL of the units; replacement is expected during the evaluation term. A budgetary allowance of cost for these items is included in Table 1.* *The boiler room area was not observed with direct combustion air ventilation typically required for a natural gas boiler. In addition, no floor drains were located in the basement in the immediate vicinity of the boiler. We recommend having a qualified licensed engineer review the building and associated requirements to determine if the current boiler system is installed adequately for this type of facility. A budget cost is included in Table 1 as an item of Immediate Repair. It should be noted that following the inspection, recommended actions may result in required shutdown and/or upgrade of selected equipment and associated systems. Associated costs for these types of issues cannot be predicted, and no budget is included for them Table 1.* *Two (2) of the hot water piping zones at the boiler were observed with missing or no insulation around the respective hot water piping. In addition, the gate isolation valves located at the boiler were observed to have evidence of corrosion. Installation of*		15, 16 17

MECHANICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	piping insulation and replacement of the corroded valves should be completed as an item of Routine Maintenance.		
Ventilation	Mechanical ventilation was provided by outdoor air ductwork to the various split system units. Bathrooms were provided with exhaust by individual ceiling mounted fans exhausted to the exterior. The main kitchen was equipped with an exhaust hood located over the natural gas range with discharge at the roof level through a fan powered central duct. The hood is routinely inspected by Cochrane Ventilation, Inc. and was last inspected in August 2017. Passive ventilation was provided by operable windows and doors, through wall louvered vents and natural air infiltration. *Indoor air quality was not studied as part of this assessment. Observed exhaust and air movement equipment appeared to be in good to fair condition. Renovation of selected ventilation equipment including fan motor replacement, lubrication and general repairs should be expected throughout the evaluation term as part of Routine Maintenance.* *No direct outdoor air ventilation was observed to the original building areas served by the individual ductless air handling units. We question whether the outdoor air ventilation is adequate to meet the current codes and requirements for a commercial space. We recommend having a qualified licensed engineer review the building and associated requirements to determine if the current ventilation is adequate for this type of facility. A budget cost is included in Table 1 as an item of Immediate Repair. It should be noted that following the inspection, recommended actions may result in required shutdown and/or upgrade of selected*	G to F	Included in 17

MECHANICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	equipment. Associated costs for these types of issues cannot be predicted, and no budget is included for them Table 1. *A clothes dryer vent was observed to be ducted directly into a lint trap bucket located in the basement and not directly to the exterior. Dryer vent ductwork should be ducted directly to the exterior. A budget cost is included in Table 1 as an item of Immediate Repair.*		18
Control Systems	The heating and cooling equipment was generally controlled by a mixture of analog and digital thermostats with programmable controls for night and weekend setbacks. *The observed control systems appeared to be in good overall condition.*	G	

5.7 ELECTRICAL SYSTEMS

Electrical items are related to the readily visible components of the electrical systems installed at the facility. This assessment is intended to be a general overview of the component type, equipment capacity, and distribution methods. Operational testing of electrical systems was not conducted. Items included in the electrical assessment are service distribution, transformers, switchgear, panelboards, conductors, and lighting.

ELECTRICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Transformers and Power Delivery	Electrical service to the building was provided by Unitil. Power was supplied via overhead lines from a pole-mounted transformer located outside the building, across the street.	G	

ELECTRICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Main Switchgear	The main electrical panels were located in the basement with additional panels located in an 1st floor room utilized for IT equipment which also includes a janitorial mop sink. The main electrical service panels provide 400-amp, 208/120-volt, 3-phase, 4-wire, alternating current (AC) to the building. *The electrical equipment generally appeared to be in good condition. We observed exposed wiring and other general electrical safety issues particularly in the basement area. Engagement of a qualified electrician is recommended to review these conditions and make needed repairs. An allowance for this item is included in Table 1 as an Immediate Repair.* *One of the existing electrical panels in the basement is located directly over an open water sump pump area and does not appear to have the required clearances for proper maintenance. In addition, the location of the 400-amp panelboard located in the 1st floor IT Room is also located in immediate proximity to a mop sink which can be a hazard should a water leak or similar event occur. It is recommended that these panels be relocated as a means of improved safety. A budget cost is included in Table 1 as an item of Immediate Repair.* *The electrical equipment appeared to be in good condition, but has not been inspected, tested or serviced in recent years. As such, a thermographic inspection and associated repairs should be performed by a qualified electrician. This is considered to be an item of routine maintenance. It should be noted that following the inspection, recommended actions may result in required shutdown of selected equipment for repairs, tightening of lugs or other maintenance related procedures. Associated costs for these types of issues cannot be predicted, and no budget is included for them Table 1.*	G to F	19 Included in 19

ELECTRICAL SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Electrical Distribution	Electrical panels were observed at various locations in the building. Electrical panels were equipped with circuit breaker overload protection. It was reported that the distribution wiring providing power to the branch circuits within the tenant spaces and common areas consisted of copper. Where observed, wiring was located in a mixture of rigid/flexible metal conduit and Romex. *It was reported that electrical problems or interruptions in tenant operations are minimal. Observed conduit and circuit breaker panels appeared to be in good condition.*	G	
Interior Lighting	Lighting fixtures within building common areas and in office spaces typically were fluorescent fixtures recessed in the suspended ceilings. Observed fluorescent units included T-8 lamps with electronic ballasts primarily in the office areas and older T-12 lamps in storage and other areas primarily within the original building areas. The common areas also utilized surface mounted ceiling fixtures as well as hanging pendant and chandelier light fixtures, some with CFL bulbs. *Lighting fixtures appeared to be in good overall condition requiring routine inspection, repairs and maintenance during the evaluation term, but some observed older fixtures and lamps are considered to be very inefficient with regard to energy use. Consideration should be given to performing an energy audit of the building.*	G to F	
Emergency Power	Not Applicable.	N/A	

5.8 PLUMBING SYSTEMS

Plumbing items are related to the readily visible components of the plumbing systems installed at the facility. This assessment was intended to be a general overview of the component type, system capacity, and distribution methods. Operational testing of plumbing systems was not conducted. Items included in the plumbing assessment were sanitary sewers, roof drains, domestic water supply, natural gas distribution, and insulation.

PLUMBING SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Water Supply	The building was supplied with water underground from Lunenburg Water District's main line.	G	
Domestic Water Distribution	A 1-inch diameter water service line entered the building in the basement. The domestic water meter was observed at the service connection in the basement. A backflow prevention device was observed on the domestic main and was last inspected by Simplex Grinnell on 11/8/2017. In exposed locations, observed distribution piping for domestic water systems was constructed of copper. *Active piping leaks were not reported or observed during the on-site visit.* *Corrosion was observed on the main water shutoff valve. In addition, shutoff valves for many of the individual plumbing fixtures (sinks and toilets) were observed to be difficult to turn and close completely. Replacement of these valves should be completed. Due to the limited aggregate quantity, this is considered Routine Maintenance.*	G	
Hot Water Systems	A 15-gallon and 20-gallon electric water heater provided domestic hot water for the building. The 15-gallon heater was located in the basement and the 20-gallon heater was located in the 2nd floor attic space adjacent to the 2nd floor AHU. According to the nameplate	G	

PLUMBING SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	data, the water heaters were manufactured by Ruud in 2007 and 2011 respectively. *The water heater appeared to be in good condition. Water pressure and volume were reported to be adequate for the building needs. Based on the estimated RUL of the unit, replacement should be expected during the evaluation term. Due to the minimal aggregate quantity and associated cost, this item is considered to be routine maintenance.* *The 15-gallon water heater located in the basement was installed on a wood shelf and did not have a drain pan located under this respective unit. It is recommended to provide a drain pan under this unit to avoid damage to the surrounding area should a leak occur. This is considered an item of Routine Maintenance.*		
Sanitary Sewer/Storm System	The sanitary wastes generated at the building were conveyed to underground piping, which discharged to the municipal sewer system owned and maintained by the Town of Lunenburg. A storm water sump pump was located in the rear corner of the basement adjacent to the water main and electrical equipment. *Sanitary sewer systems and waste piping were not observed due to hidden (underground) conditions. No evidence of odor or problems with the wastewater systems were observed or reported.* *A section of sanitary sewer piping serving 1st floor bathroom areas was observed to be constructed utilizing Acrylonitrile Butadiene Styrene (ABS)-DWV piping, manufactured by Cresline. This piping was reportedly installed in 1998 at the time of the building addition and currently ties into the existing black steel piping located in the basement. ABS piping has had a history of material failures specifically for piping manufactured in the mid-1980's. Although no leaks or issues have been reported at this location with this piping,*	G to F	20

PLUMBING SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
	it is recommended that this piping be replaced with black steel or PVC piping suitable for this type of application. A budgetary cost is included in Table 1 as an item of Immediate Repair.		
Natural Gas	The building's gas service line entered the rear of the building. The gas piping within the building was observed to be steel.	G	

5.9 CONVEYANCE SYSTEM

Conveyance systems include readily visible and accessible equipment installed at the facility. This evaluation was intended to be a general overview of the systems observed. No operational testing was conducted. These systems included equipment used to transport people or objects vertically or horizontally within the building and include elevators, escalators, conveyors, and platform lifts.

CONVEYANCE SYSTEM			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Elevators	Not Applicable.	N/A	
Escalators	Not Applicable.	N/A	
Platform Lifts	Not Applicable.	N/A	

5.10 LIFE AND FIRE SAFETY

Life and Fire Safety Systems were observed to the extent that components were visually accessible. This evaluation was intended to be a general overview of the systems observed and not an opinion of safety or adequacy. Operational testing was not conducted. These systems

include sprinklers and standpipes, emergency lighting, alarm and annunciation components, smoke evacuation, and fire separation.

LIFE & FIRE SAFETY SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Sprinkler Systems	The building, except for the uppermost attic area of the original building, was protected by an automatic, wet-pipe fire sprinkler system, which relied on municipal water pressure to operate. Pressure read from gauges on the wet standpipe indicated a static pressure of 70 psi at the building basement. These readings compared favorably to readings recorded on the tags on the risers. A backflow prevention device consisting of a set of double gate valves isolating a check valve was observed at the main sprinkler connection. *The sprinkler system appeared to be in good condition. A private fire protection contractor (Simplex Grinnell) last inspected the sprinkler system on 11/8/2017.* *The upper attic area of the original building was observed to not be protected by the fire sprinkler system. We recommend having a qualified licensed fire protection engineer review the building and associated requirements to determine if the area in question is required to be protected by a fire sprinkler system. A budget cost is included in Table 1 as an item of Immediate Repair. It should be noted that following the inspection, recommended actions may result in required shutdown and/or upgrade of selected fire protection equipment. Associated costs for these types of issues cannot be predicted, and no budget is included for them Table 1.*	G	21
Sprinkler Heads	Sprinkler heads were observed throughout the building except for the uppermost attic space and spares observed in the wall mounted cabinet near the risers were manufactured by RASCO. *Observed sprinkler heads were not part of any past or current product recalls and appeared to be in generally good condition.*	G	

LIFE & FIRE SAFETY SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Specialty Suppression Systems	The range hood in the main kitchen area did not include a wet chemical ANSUL fire suppression system. The hood was observed to be provided with one fire sprinkler head which is connected to the main fire sprinkler system serving the rest of the building. *The main kitchen hood was not protected by an approved kitchen hood fire suppression system. We recommend having a qualified licensed fire protection engineer/contractor review the hood design and provide an approved fire sprinkler system. A budget cost is included in Table 1 as an item of Immediate Repair.*	P	Incl. in 21
Fire Hydrants	Municipal fire hydrants were located along the public roads bordering the property.	G	
Fire Pump	Not Applicable.	N/A	
Standpipes & Hose Connections	Not Applicable.	N/A	
Emergency Lighting	Emergency lighting fixtures were provided throughout the building. The office areas and corridors contained emergency lighting fixtures with battery backup power. *Emergency lighting units appeared to be in good condition; however, the emergency lighting units were not operated or tested as part of this PCA.*	G	
Illuminated Exit Signs	Illuminated exit signs were provided throughout the building. The common spaces, corridors, stairwells and selected office areas contained exit light fixtures with battery backup power. *Exit signs appeared to be in good condition; however, exit signs were not operated or tested as part of this PCA.*	G	

LIFE & FIRE SAFETY SYSTEMS			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Alarm Systems	The building was provided with a fire alarm system with battery backup consisting of sprinkler flow and tamper switches, smoke detectors and pull stations. The building was equipped with audible alarms, which included visual strobe components. A Honeywell FireLite model central alarm panel located in the 1st floor Recreation Room monitored the system. In the event of an emergency, the panel notified a central monitoring station, which notified the fire department. *The alarm panel was functioning in the "Normal" mode at the time of our visit. VERTEX did not test the system or observe its operation as part of this assessment.* *Inspection tags were not located for the alarm system. Immediate engagement of a fire protection vendor is required to inspect the system. A budgetary allowance for this item is included in Table 1 as an Immediate Repair. In the event that current documentation can be provided showing that the system has been tested and inspected within the past 12 months, this item is not necessary.*	G	22
Smoke Detection and Control	Hard-wired smoke detectors were observed in various building locations. *Smoke detectors appeared to be in good condition; however, smoke detectors were not operated or tested as part of this PCA.*	G	
Fire Extinguishers	Fire extinguishers were provided at various locations throughout the building. *According to equipment tags, observed fire extinguishers were serviced or re-charged in March 2017 by O'Connell Fire Protection, Inc.*	G	

6.0 ANCILLARY STRUCTURES

Ancillary structures are those elements contained within a property, which are considered to be physical plants subject to the provisions of building codes, which may or may not be considered occupied structures, and may or may not include associated mechanical, electrical or plumbing systems. Typical ancillary structures might include parking garages, annex buildings or storage sheds.

ANCILLARY STRUCTURES			
Item	**Description of System or Component**	**Overall G, F, P**	**Cost Item #**
Parking Garage	Not Applicable.	N/A	
Annex Building	Not Applicable.	N/A	
Storage Shed	The property included a storage shed located in the rear yard. The shed sat on cast stone blocks and measured approximately eight feet deep by 10 feet wide. The shed was sided with painted wood boards and included a fixed wood window with non-insulated glazing and a simple painted wood board door. The roof consisted of a pitched gable with asphalt composition roofing shingles. The shed was vented with fixed aluminum vents located in the gable ends. *The shed appeared to be in good overall condition requiring routine maintenance during the evaluation term.*	G	

7.0 Accessibility (ADA)

The Americans with Disabilities Act (ADA) is not a building code; it is a civil rights law that was enacted in 1990 to provide persons with disabilities with accommodations and access equal to, or similar to, that available to the general public. Title III of the ADA requires that owners of buildings that considered to be placed of public accommodations remove those architectural barriers and communications barriers that are considered readily achievable in accordance with the resources available to the building ownership to allow use of the facility by the disabled.

The obligation to remove barriers where readily achievable is an ongoing one. The determination as to whether removal of a barrier or implementation of a component or system is readily achievable is often a business decision, which is based on the resources available to the owner or tenants and contingent upon the timing of implementation. Determination of whether barrier removal is readily achievable is on a case-by-case basis; the United States Department of Justice did not provide numerical formulas or threshold of any kind to determine whether an action is readily achievable.

As required by the ADA, the U.S. Architectural and Transportation Barriers Compliance Board promulgated the ADA Accessibility Guidelines (ADAAG), which provided guidelines for implementation of the ADA by providing specifications for design, construction and alteration of facilities. The ADAAG was superseded by the 2010 ADA Standards for Accessible Design.

As part of this PCA, VERTEX performed a “Baseline Evaluation” of ADA consisting of a limited scope visual survey and completion of a checklist extracted from ASTM E2018-15 X2 (Figure X3). This visual review most closely resembles what was previously known as a Tier I ADA survey.

Our survey was limited to visual observations unless specifically stated. Measurements were not taken, and compliance with dimensional tolerances stated by the guidelines was only visually assessed. While opinions of cost to correct noted barriers have been provided, they do not constitute a recommendation that removal of the barriers are “readily achievable” and not an “undue burden” as stated in the ADA.

Although access is required to be provided to individuals with disabilities to approach, enter, and exit employee-only areas, VERTEX did not review the employee-only interior spaces and entrances. Paths of travel leading to the entrances were reviewed as part of the interior and exterior common areas. At least one accessible entrance to each tenancy in a facility should comply. VERTEX did not review the tenant entrances or features and amenities within the tenant spaces since they are the responsibility of the tenant.

In addition to the new 2010 ADA Standards, some states and municipalities have adopted building codes similar to the 1991 ADA Accessibility Guidelines (ADAAG). In some instances, these code requirements are more restrictive than the 1991 ADAAG. For purposes of this report, state specific requirements were not considered as part of this report.

Representative areas of the following portions of the site were surveyed:

1) **Parking** – Comparison of the number of provided parking stalls designated for handicapped use to the number required for the reported parking stall total for the site.
2) **Exterior Accessible Route and Building Entrances** - Visual identification of physical barriers from parking to the building entrances.
3) **Building Entrances** - Review of the building entrance access to the interior.
4) **Interior Accessible Routes and Amenities –** Review of the interior route, obstructions, path of travel and access to public features and equipment.
5) **Interior Doors –** Review of doors, clear width, hardware and apparent opening force.
6) **Elevators** – Observation of elevator floor area, signals, signs, safety devices, and emergency call systems.
7) **Toilet Rooms -** Visual review of common area restrooms available for public use (toilet stalls designed with accessible features, sinks at lower heights with adequate clearances, appropriate sink fixtures and accessories).
8) **Hospitality Guestrooms -** Comparison of the number of guestrooms with accessible features and roll-in showers, with required amount based on reported number of total guest rooms.

ASTM E2018-15 - Uniform Abbreviated Screening Checklist - 2010 Americans with Disabilities Act

Item		Yes	No	NA	Comments
A.	**History**				
1.	Has an ADA survey previously been completed for this property?		✓		
2.	Have any ADA improvements been made to the property since original construction?	✓			
3.	Has building ownership/management reported any ADA complaints or litigation?		✓		
B.	**Parking**				
1.	Does the required number of standard ADA-designated spaces appear	✓			

	ASTM E2018-15 - Uniform Abbreviated Screening Checklist - 2010 Americans with Disabilities Act				
	to be provided?				
2.	Does the required number of van-accessible designated spaces appear to be provided?		✓		***ADA-1***
3.	Are accessible spaces part of the shortest accessible route to an accessible building entrance?	✓			
4.	Is a sign with the International Symbol of Accessibility at the head of each space?		✓		***ADA-2***
5.	Does each accessible space have an adjacent access aisle?	✓			
6.	Do parking spaces and access aisles appear to be relatively level and without obstruction?	✓			
C.	**Exterior Accessible Route**				
1.	Is an accessible route present from public transportation stops and municipal sidewalks on the property?	✓			
2.	Are curb cut ramps present at transitions through curbs on an accessible route?	✓			
3.	Do the curb cut ramps appear to have the proper slope for all components?	✓			
4.	Do ramps on an accessible route appear to have a compliant slope?			✓	
5.	Do ramps on an accessible route appear to have a compliant length and width?			✓	
6.	Do ramps on an accessible route appear to have compliant end and intermediate landings?			✓	
7.	Do ramps on an accessible route appear to have compliant handrails?			✓	
D.	**Building Entrances**				
1.	Do a sufficient number of accessible entrances appear to be provided?	✓			
2.	If the main entrance is not accessible, is an alternate accessible entrance provided?			✓	
3.	Is signage provided indicating the location of alternate accessible entrances?			✓	
4.	Do doors at accessible entrances appear to have compliant clear floor area on each side?	✓			
5.	Do doors at accessible entrances appear to have compliant hardware?	✓			
6.	Do doors at accessible entrances appear to have a compliant clear opening width?	✓			
7.	Do pairs of accessible entrance doors in series appear to have the	✓			

	ASTM E2018-15 - Uniform Abbreviated Screening Checklist - 2010 Americans with Disabilities Act				
	minimum clear space between them?				
8.	Do thresholds at accessible entrances appear to have a compliant height?	✓			
E.	**Interior Accessible Routes and Amenities**				
1.	Does an accessible route appear to connect with all public areas inside the building?	✓			
2.	Do accessible routes appear free of obstructions and/or protruding objects?	✓			
3.	Do ramps on accessible routes appear to have a compliant slope?			✓	
4.	Do ramps on accessible routes appear to have a compliant length and width?			✓	
5.	Do ramps on accessible routes appear to have compliant end and intermediate landings?			✓	
6.	Do ramps on accessible routes appear to have compliant handrails?			✓	
7.	Are adjoining public areas and areas of egress identified with accessible signage?			✓	
8.	Do public transaction areas have an accessible, lowered counter section?			✓	
9.	Do public telephones appear mounted with an accessible height and location?			✓	
10	Are publicly-accessible swimming pools equipped with an entrance lift?			✓	
F.	**Interior Doors**				
1.	Do doors at interior accessible routes appear to have compliant clear floor area on each side?	✓			
2.	Do doors at interior accessible routes appear to have compliant hardware?	✓			
3.	Do doors at interior accessible routes appear to have compliant opening force?	✓			
4.	Do doors at interior accessible routes appear to have a compliant clear opening width?	✓			
G.	**Elevators**				
1.	Are hallway call buttons configured with the “UP” button above the “DOWN” button?			✓	*Unless the future use of the facility is changed to a facility that houses a shopping center, a shopping mall, the professional office of a*
2.	Is accessible floor identification signage present on the hoistway sidewalls?			✓	
3.	Do the elevators have audible and visual arrival indicators at the entrances?			✓	

	ASTM E2018-15 - Uniform Abbreviated Screening Checklist - 2010 Americans with Disabilities Act				
4.	Do the elevator hoistway and car interior appear to have a minimum compliant clear floor area?			✓	*health care provider, a terminal, depot, or other station used for specified public transportation, an elevator is not required.*
5.	Do the elevator car doors have automatic re-opening devices to prevent closure on obstructions?			✓	
6.	Do elevator car control buttons appear to be mounted at a compliant height?			✓	
7.	Are tactile and Braille characters mounted to the left of each elevator car control button?			✓	
8.	Are audible and visual floor position indicators provided in the elevator car?			✓	
9.	Is the emergency call system at the base of the control panel and not require voice communication?			✓	
H.	**Toilet Rooms**				
1.	Do publicly-accessible toilet rooms appear to have a minimum compliant floor area?	✓			
2.	Does the lavatory appear to be mounted at a compliant height and with compliant knee area?	✓			
3.	Does the lavatory faucet have compliant handles?	✓			
4.	Is the plumbing piping under lavatories configured to protect against contact?	✓			
5.	Are grab bars provided at compliant locations around the toilet?	✓			
6.	Do toilet stall doors appear to provide the minimum compliant clear width?			✓	*They are single user-type toilet rooms*
7.	Do toilet stalls appear to provide the minimum compliant clear floor area?			✓	
8.	Do urinals appear to be mounted at a compliant height and with compliant approach width?			✓	
9.	Do accessories and mirrors appear to be mounted at a compliant height?	✓			
I.	**Hospitality Guestrooms**				
1.	Does property management report the minimum required accessible guestrooms?			✓	
2.	Does property management report the minimum required accessible guestrooms with roll-in showers?			✓	

8.0 REPORT QUALIFICATIONS & LIMITATIONS

This report was prepared in accordance with the scope of work, and terms and conditions associated with VERTEX Proposal No. P.2489.17, dated September 29, 2017.

This report was prepared in general conformance with the guidelines of ASTM E2018-15 for Property Condition Assessments. This report was intended to provide a general overview of the building systems at the facility and the general conditions of such. The evaluation was performed using that degree of skill and care normally exercised by reputable consultants performing similar work. The activities of this evaluation included observations of visible and readily accessible areas. In some cases, additional study may be warranted to more fully assess concerns noted.

The opinions and recommendations presented in this report are based on VERTEX's observations, evaluation of the information provided, and interviews with personnel possessing knowledge of the facility. No calculations were made to determine the adequacy of the facility's original or existing design. The possibility exists that defects and deficiencies are present at the subject facility, which were not readily visible or accessible. The development of future problems not identified in this report, on any observed system, at the subject property should be anticipated.

The opinions and recommendations in this report should not be construed in any way to constitute a warranty or guarantee regarding the current or future performance of any system identified.

The following paragraphs are intended to summarize VERTEX's Definition of Property Condition Assessment (PCAs).

A Property Condition Assessment ("PCA") is the process by which VERTEX observes researches and documents in a written report (the PCA Report") the current physical condition of commercial property and, in addition, provides required estimated expenditures to remedy physical deficiencies. A physical deficiency is defined to be a patent, conspicuous defect, or significant deferred maintenance of the subject property's material systems, components or equipment. It could also include material systems, components or equipment that are approaching, have realized, or have exceeded their typical expected useful life ("EUL") or whose remaining useful life ("RUL") should not be relied upon as a result of actual age, abuse, excessive wear and tear, exposure to the elements, lack of proper maintenance, or other factors. This definition specifically excludes routine maintenance, miscellaneous repairs, operating maintenance, etc. It should be noted that items considered as routine or operating maintenance may be defined by the current practices of the management or property personnel operating the

site. Specific definitions of categories of physical deficiencies including Immediate Repairs, Short-Term Repairs, and Capital Needs including the time-period associated with each, are presented within the body of the PCA Report.

This assignment was performed as a **Level II PCA**. For the purposes of clarification and comparison, VERTEX's levels of PCA service are defined as follows:

- Level I PCA: This assessment will be prepared by a qualified professional, performing a visual survey of the property to assess the general condition of the property, structures and associated mechanical components. This PCA may be escalated to a more thorough Level II or Level III PCA following the initial site visit and evaluation, following discussion with the Client.
- ***Level II PCA: This assessment includes the Level I PCA, with specific items of concern investigated in more detail by one or more specialist in the respective fields (mechanical, roofing, elevators, etc.). These more detailed visual assessments may be incorporated into a single PCA report discussion, or may be presented in a separate report.***
- *Level III PCA:* This assessment includes the Level I PCA, with specific items of concern investigated in more detail by a team of specialists, including subcontractors where warranted, and including operation, testing, and potentially destructive testing of individual systems or components where warranted and approved. These more detailed assessments may be incorporated into a single PCA report discussion, or may be presented in a separate report, which may include test and evaluation data.

The visual observation portion of the PCA consisted of a walk-through survey of the subject property undertaken to observe readily accessible property components, systems, and elements for the purposes of providing a brief description of same, providing an opinion on their general apparent physical condition, and identifying material physical deficiencies as of the time of VERTEX's site visit. This portion of the PCA was a non-intrusive, visual survey; it is not to be construed as a punch list or detailed survey of the property's major physical deficiencies. It is also not considered to be an inventory of building system or material components.

VERTEX extrapolated representative findings to typical areas and systems of the subject property to provide the Client with a reasonably estimated magnitude of commonly anticipated conditions and to use as a basis for estimating the cost of required expenditures to remedy physical deficiencies at the subject property.

In some cases, where additional study or specific expertise is required to define appropriate repair or renovation methods, an estimated cost for the study is presented. In these cases,

associated repair or renovation costs are typically excluded, unless reasonable order of magnitude budgetary estimates can be assumed without the benefit of a specific scope of work.

Unless specifically requested by Client and included in the agreed upon, written scope of services the following items were excluded from the scope of services for this PCA:

- Removal of materials, furniture or finishes; conducting any exploratory probing or testing; dismantling or operation of any equipment; or disturbing any personal items or property which obstructs access or visibility.
- Preparation of engineering calculations (civil, structural, mechanical, electrical, etc.) to determine any system's components or equipment's adequacy or compliance with any specific or commonly accepted design requirements and building codes, or the preparation of designs or specifications to remedy any physical deficiency.
- Reporting on the condition of subterranean conditions such as underground utilities, separate sewage disposal systems, wastewater treatment plants, wells or systems that are either considered process related or peculiar to a specific tenancy or use, or items or systems that are not permanently installed.
- Entering or accessing any area of the premises deemed to pose a dangerous or adverse condition to the consultant or to perform any procedure which may damage or impair the physical integrity of the property, any system or equipment.
- Providing an opinion on the condition of any system or component which is seasonally shut down.
- Provision of a warranty or guarantee of any systems or component's physical condition or use. A PCA is not to be construed as a substitute for any system's or equipment's warranty transfer inspection.
- Review of compliance with any federal, state, city, trade/design, or insurance industry building codes, local laws, health codes or local zoning ordinances. However, violations of codes, laws and ordinances that are observed by VERTEX and any retroactive or pending requirements contained in such codes, laws, and ordinances that are known to VERTEX, or identified during interviews with code authorities, may be identified in the report.

TABLE 1

IMMEDIATE AND REPLACEMENT RESERVES COST ESTIMATES

TABLE 1
IMMEDIATE REPAIRS, SHORT TERM REPAIRS, and CAPITAL NEEDS ESTIMATE

VERTEX

Site Name:	Eagle House
City, ST:	Lunenburg , MA
Age, Yrs:	178
Project No.:	48237

# Buildings:	1
Est. Building SF:	5,500
Eval. Term, Yrs:	5
CPI:	2.50%
# Units:	NA

	Total	*Per SF*	*Per SF/YR*
Immediate Repairs $:	$69,307	$12.60	
Short Term $ (no inflation):	$79,911	$14.53	$7.26
Short Term $ (inflated):	$80,553	$14.65	$7.32
Capital Needs $ (no inflation)	$151,291	$27.51	$5.50
Capital Needs $ (inflated)	$157,847	$28.70	$5.74

ITEM						Immediate	Reserves	SHORT TERM					RESERVE
ITEM No.	PHOTO No.	DESCRIPTION	QTY	UNIT	UNIT COST	YEARS 0-1	YEARS 1-5	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
SITE DEVELOPMENT													
1	13, 17, 18	Cut & patch deteriorated asphalt pavement areas	331	SF	$5.36		$1,774	$887			$887		$1,774
2	13, 17, 18	Renew asphalt pavement surface, including crack sealing (moderate), seal coat and re-stripe	11,136	SF	$0.22		$2,450	$1,225				$1,225	$2,450
BUILDING STRUCTURE													
3	85 thru 88	Repairs to roof framing in original section (circa 1740) of building	1	LS	$7,500.00		$7,500	$7,500					$7,500
BUILDING EXTERIOR													
4	47 thru 52, 63	Cut out and replace sealants between siding and wall penetrations (windows and doors)	982	LF	$3.55		$3,486			$3,486			$3,486
ROOF													
5	71 thru 76	Over frame to build dormer above front entrance door designed to eliminate water infiltration due to convergence of roof slopes	1	LS	$8,500.00		$8,500	$8,500					$8,500
6	71 thru 76	Repair of active leaks, minimum charge, low rise	1	EA	$500.00	$500							$0
7	67 thru 72	Remove existing roof at 1998 addition and replace with fiberglass composition shingles, laminated	4,950	SF	$6.50		$32,175				$32,175		$32,175
BUILDING INTERIOR													
8	27, 33, 41, 42, 44	Replace carpet floor coverings - low pile medium traffic	3,436	SF	$6.20		$21,303	$10,652	$10,652				$21,303
9	28, 32, 34, 35, 37, 39, 43	Replace resilient floor tile, vinyl composition tile	2,064	SF	$3.94		$8,132	$8,132					$8,132
10	25 thru 44	Painting of interior walls, drywall/plaster	22,000	SF	$0.89		$19,580	$9,790	$9,790				$19,580
11	27, 33, 34, 40, 41, 44	Drywall ceilings: repaint, minimum charge	2,875	SF	$0.80		$2,300	$2,300					$2,300
12	138 thru 149	Budgetary allowance for evaluation and abatement of hazardous materials	1	LS	$50,300.00	$50,300							$0

TABLE 1
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ITEM						Immediate	Reserves	SHORT TERM					RESERVE
ITEM No.	PHOTO No.	DESCRIPTION	QTY	UNIT	UNIT COST	YEARS 0-1	YEARS 1-5	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
MECHANICAL SYSTEMS													
13	93, 94	Revise condensate drainage at air handling units in attic area	4	EA	$75.00	$300							$0
14	90	Replace existing split systems (R22) with new indoor AHU and outdoor condensing unit	22	Ton AC	$1,191.30		$26,209	$5,242	$5,242	$5,242	$5,242	$5,242	$26,209
15	99	Replace gas-fired hot water boiler system	198	MBH	$48.74		$9,651					$9,651	$9,651
16	98	Budget for replacement of hot-water baseboard radiators and associated valves	100	LF	$82.31		$8,231					$8,231	$8,231
17	95, 99, 106	Engage mechanical engineer to investigate and recommend appropriate repair options relating to ventilation requirments	1	LS	$5,000.00	$5,000							$0
18	108	Install dryer exhaust duct to exterior of building	1	LS	$541.50	$542							$0
ELECTRICAL SYSTEMS													
19	109 thru 114	Engage qualified electrician for minor repairs, secure wiring and relocation of electrical panels away from water sources	1	LS	$4,000.00	$4,000							$0
PLUMBING SYSTEMS													
20	125, 126, 127	Budget for replacement of ABS piping with PVC or approved suitable piping material	1	LS	$5,415.00	$5,415							$0
CONVEYANCE SYSTEMS													
Not Applicable													$0

TABLE 1
IMMEDIATE REPAIRS, SHORT TERM REPAIRS, and CAPITAL NEEDS ESTIMATE

VERTEX

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Capital Needs $ (inflated)	$157,847	$28.70	$5.74

ITEM						Immediate	Reserves	SHORT TERM					RESERVE TOTAL
ITEM No.	PHOTO No.	DESCRIPTION	QTY	UNIT	UNIT COST	YEARS 0-1	YEARS 1-5	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	
LIFE SAFETY/FIRE PROTECTION SYSTEMS													
		Engage qualified licensed fire protection engineer to review the building and associated requirements to required to be protected by a fire sprinkler system, minimum charge	1										
		Engage fire protection vendor to inspect and test alarm system, minimum charge											
ANCILLARY STRUCTURES													
Not Applicable													$0
TOTAL - Immediate Repairs						$69,307							
TOTAL - Capital Needs							$151,291						
TOTAL CAPITAL NEEDS, BY YEAR, UNINFLATED								$54,228	$25,683	$8,728	$38,304	$24,348	$151,291
Inflation Factor								1.000	1.025	1.051	1.077	1.104	
TOTAL CAPITAL NEEDS, BY YEAR, WITH INFLATION								$54,228	$26,325	$9,170	$41,249	$26,876	$157,847

Notes/Abbreviations:

**Item Number corresponds to item described in supporting "cost item #" in text report.*

LS = Lump Sum; LF = Linear Foot; SF = Square Feet; SY = Square Yard; EA = Each; TN = Ton; kW = Kilowatt; FL = Floor; RUL = Remaining Useful Life

Immediate Needs = material existing or potential unsafe conditions resultant from a damaged or deteriorated condition, material building or fire code violations on file with municipal agencies, or conditions that if left uncorrected, have the potential to result in or contribute to critical element or system failure within one year or will result most probably in a significant escalation of its remedial cost. Also included as immediate needs are items, materials or systems that have exceeded their useful life. Immediate Repair time frame for repair is between 0 and 1 year. These items are generally included regardless of cost.

Short Term Repairs = Items that may not warrant immediate attention, but require repairs or replacements that should be undertaken on a priority basis in addition to routine preventive maintenance. Such opinions of probable costs may include costs for testing, exploratory probing, and further analysis should this be deemed warranted by VERTEX. Short Term repairs are the aggregate sum of Capital Needs repairs within years 1 and 2. See report text for cost thresholds defining Short Term Repairs/Capital Needs versus items of Routine Maintenance.

Capital Needs = Items which are expected to require significant repair, replacement or renovation during the specified evaluation term due to the observed condition and estimated RUL.See report text for cost thresholds defining Short Term Repairs/Capital Needs versus items of Routine Maintenance.

TABLE 2

IMPROVED ADA COMPLIANCE

PRIORITES AND ESTIMATED COSTS

TABLE 2
GENERAL ADA IMPROVEMENTS

# of ADA Items	2
Site Name:	Eagle House
Site Location:	Lunenburg , MA
Building Age, yrs:	178
Project No.:	48237

ADA Observations

Item #	Photo #	Description	QTY	Unit	Unit Cost	Total
PARKING - EXTERIOR ROUTE - BUILDING ENTRANCES						
ADA- 1	24	Convert existing standard space to van accessible space	1	EA	$623.00	$623
ADA- 2	24	Install vertical signage at the head of parking stall	2	EA	$298.00	$596
INTERIOR ACCESSIBLE ROUTES - AMENITIES - INTERIOR DOORS - ELEVATORS						
No significant issues observed for interior routes, amenities, interior doors or elevators						
TOILET ROOMS						
No significant issues observed for toilet rooms						
HOSPITALITY GUEST ROOMS						
Not Applicable						
					TOTAL	**$1,219**

Notes/Abbreviations:

LS = Lump Sum; LF = Linear Foot; SF = Square Feet; SY = Square Yard; EA = Each; TN = Ton; kW = Kilowatt; FL = Floor

Any future alterations are subject to compliance with local, state and federal requirements. In some cases, the tenants do not offer services which interface with the general public, and reasonable accommodations appear to be in place for employee accessibility.

ADA related issues are included on this table regardless of magnitude of cost.

ADA Priorities :
1 = Accessible approach and entrance
2 = Access to goods and services
3 = Access to restrooms
4 = Other measures

This is not meant to be a detailed ADA compliance audit. Costs are based on general, 'order of magnitude' estimates to provide improved

APPENDIX A

PHOTOGRAPHIC DOCUMENTATION

Photo #1: Overview of Eagle House as viewed from the west side of the property

Photo #2: Property signage adjacent to main property entrance

Photo #3: Main building entrance (west side of building)

Photo #4: Partial south elevation (1998 addition)

Photo #5: Partial west elevation (circa 1740)

Photo #6: Partial south elevation (circa 1740)

Photo #7: Front porch

Photo #8: East elevation

Photo #9: Exterior of building as viewed from the northeast corner

Photo #10: Partial north elevation (northeast corner of building)

Photo #11: Partial north elevation (middle section at rear of building)

Photo #12: Northwest corner of building

Photo #13: Partial west elevation

Photo #14: View of concrete sidewalk

Photo #15: Sidewalk at west side of building with brick pavers and a footbridge with wood and composite materials

Photo #16: Shuffle board court with metal benches at north side of property (rear yard)

Photo #17: Raised (wooden) planting beds in rear yard

Photo #18: Wooden swing set in rear yard

Photo #19: Stone benches at rear patio

Photo #20: Painted wood storage shed in rear yard

Photo #21: Asphalt-paved driveway and parking area (west side of property)

Photo #22: View of asphalt paving with cracking

Photo #23: Concrete-paved sidewalk

Photo #24: Accessible parking spaces adjacent to main building entrance. Note lack of vertical signage

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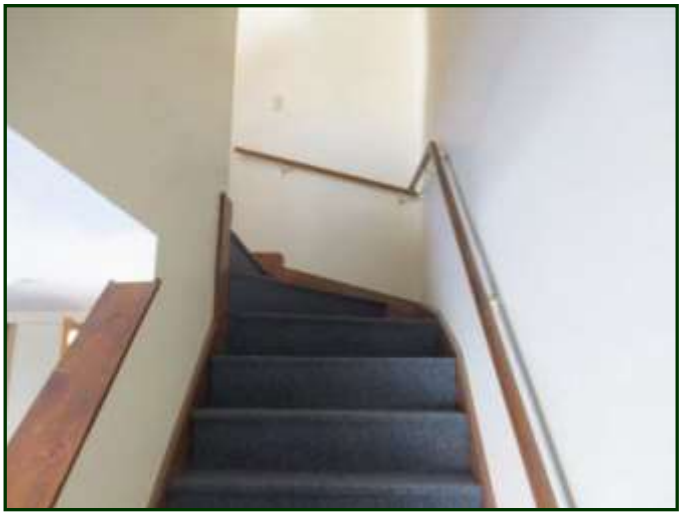

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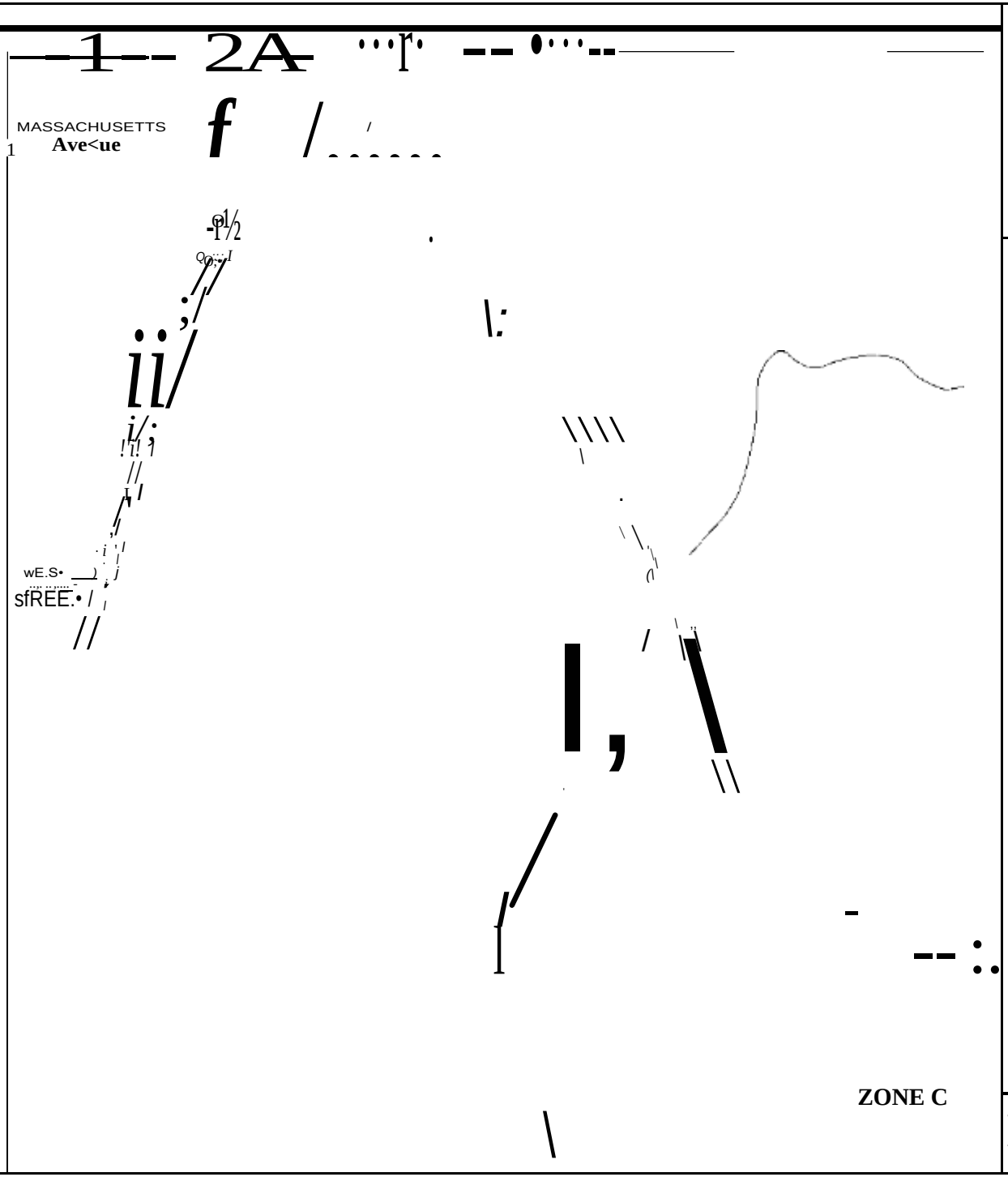
APPENDIX B

RELEVANT SUPPORTING DOCUMENTATION



APPROXIMATE SCALE

500 0 500 F-EET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF LUNENBURG, MASSACHUSETTS

WORCESTER COUNTY

PANEL 5 OF 6

(SEE MAP' 11\IIJ,EX !-QR PANELS NOT f'tHNTII:O)

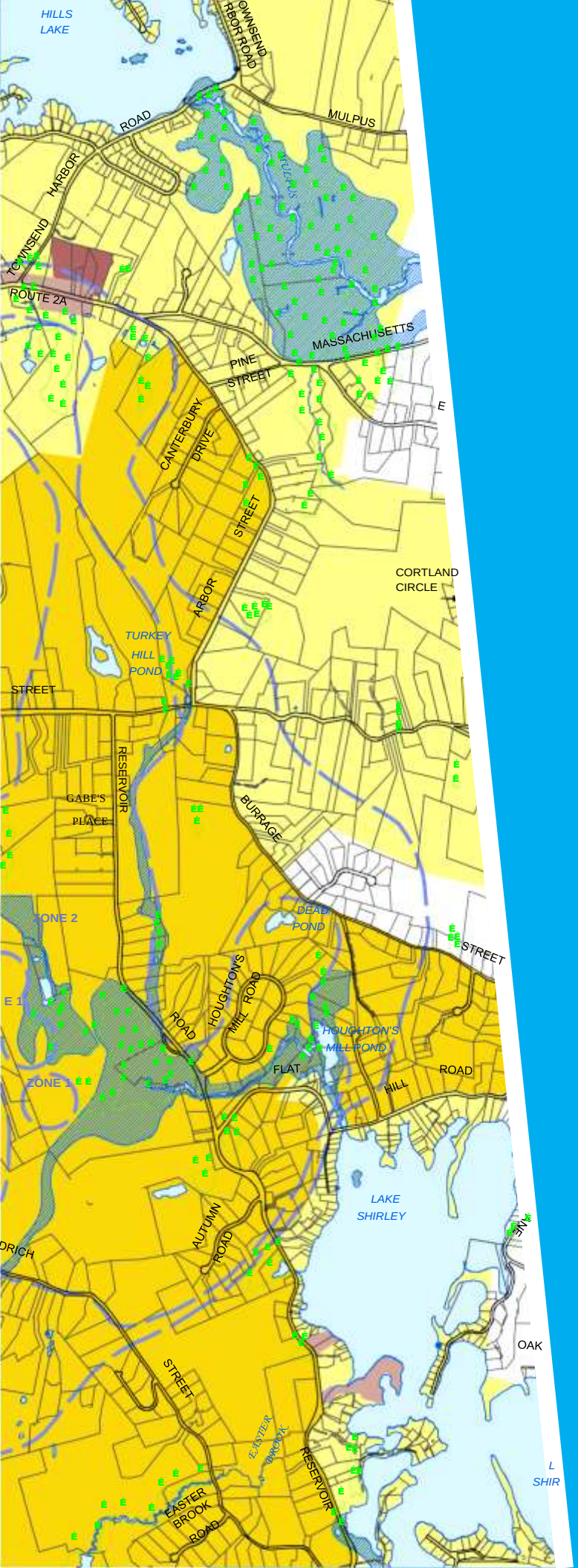
COMMUNITY-PANEL NUMBER

250315 0005 B

EFFECTIVE DATE:

JUNE 15, 1982

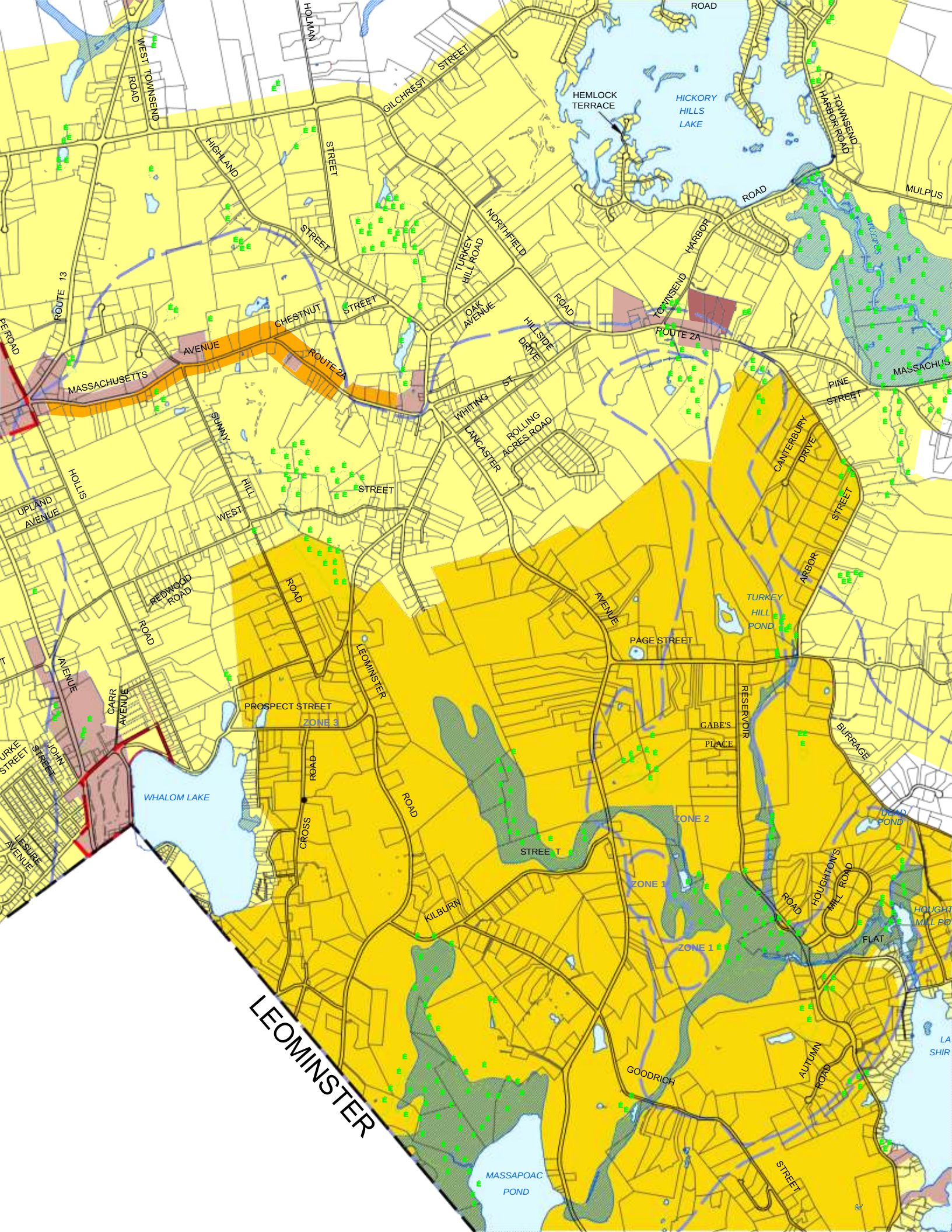
Federal Emergency Managemer,t Ager,,y

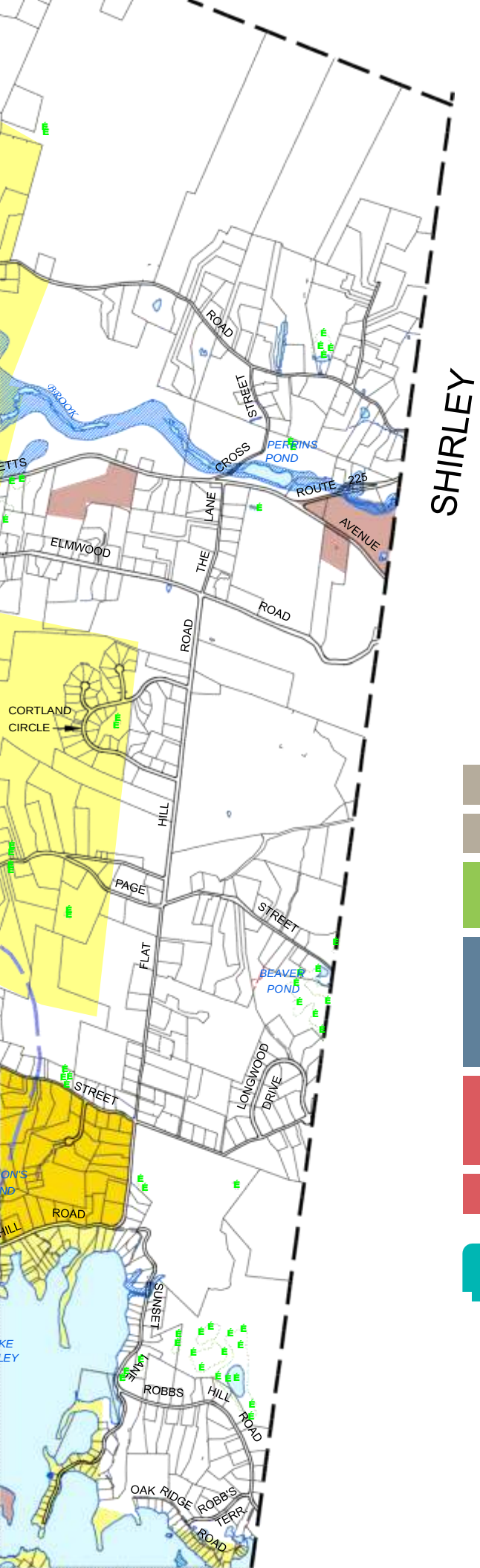


TOWN OF LUNENBURG BUILDING ASSESSMENT & SPACE NEEDS STUDY

PASSIOS SCHOOL
TOWN HALL
OLD PRIMARY SCHOOL
RITTER MEMORIAL BUILDING

JANUARY 11, 2016


ROAD
HOLMAN
WEST TOWNSEND ROAD
GILCHREST STREET
HEMLOCK TERRACE
HICKORY HILLS LAKE
HARBOR ROAD
TOWNSEND
MULPUS
HIGHLAND
STREET
NORTHFIELD
TURKEY HILL ROAD
HARBOR
ROUTE 13
CHESTNUT
AVENUE
ROUTE 2A
OAK AVENUE
HILLSIDE DRIVE
TOWNSEND
MASSACHUSETTS
WHITING ST.
LANCASTER
ROLLING ACRES ROAD
PINE STREET
CANTERBURY DRIVE
SUNNY
HILL
WEST
HOLLIS
UPLAND AVENUE
REDWOOD ROAD
ARBOR
TURKEY HILL POND
PAGE STREET
PROSPECT STREET
ZONE 3
LEOMINSTER
CARR AVENUE
GABE'S PLACE
RESERVOIR
BURRAGE
WHALOM LAKE
CROSS
ZONE 2
DEAD POND
ZONE 1
HOUGHTON'S MILL ROAD
KILBURN
FLAT
LEISURE AVENUE
GOODRICH
AUTUMN ROAD
MASSAPOAC POND
LEOMINSTER



WORCESTER COUNTY, MA

CONTENTS

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

The Town of Lunenburg Issued a Request for Proposal in July of 2015 and selected Tappe Architects in August 2015 to complete a feasibility study to examine options for the future of multiple Town owned buildings.

The study examined four buildings, the existing Town Hall, the former Primary School Building, the Ritter Building and the former Passios Elementary School. The town also owns and currently uses the Brooks House, the study however did not consider the future use of that structure.

Tappe Architects worked with the Town Building Re-Use Committee and Town Manager to develop a space program that summarizes current and future space needs. The existing buildings were reviewed by consulting engineers for structural condition as systems conditions. Then a series of preliminary options were developed and analyzed for how well they would meet the Town's needs. Finally, a preferred option was developed and a conceptual cost model was developed for both the preliminary and final options.

EXISTING BUILDINGS

The existing Town Hall is in active use for both municipal office space and public meeting space. The building was originally constructed in the early 1830's and was relocated to its present location in 1867. The building is a post and beam wood structure with a stone foundation on a very limited lot. It can be anticipated that this building will require exterior envelope and structural stabilization in the future as well as systems and code compliance upgrades.

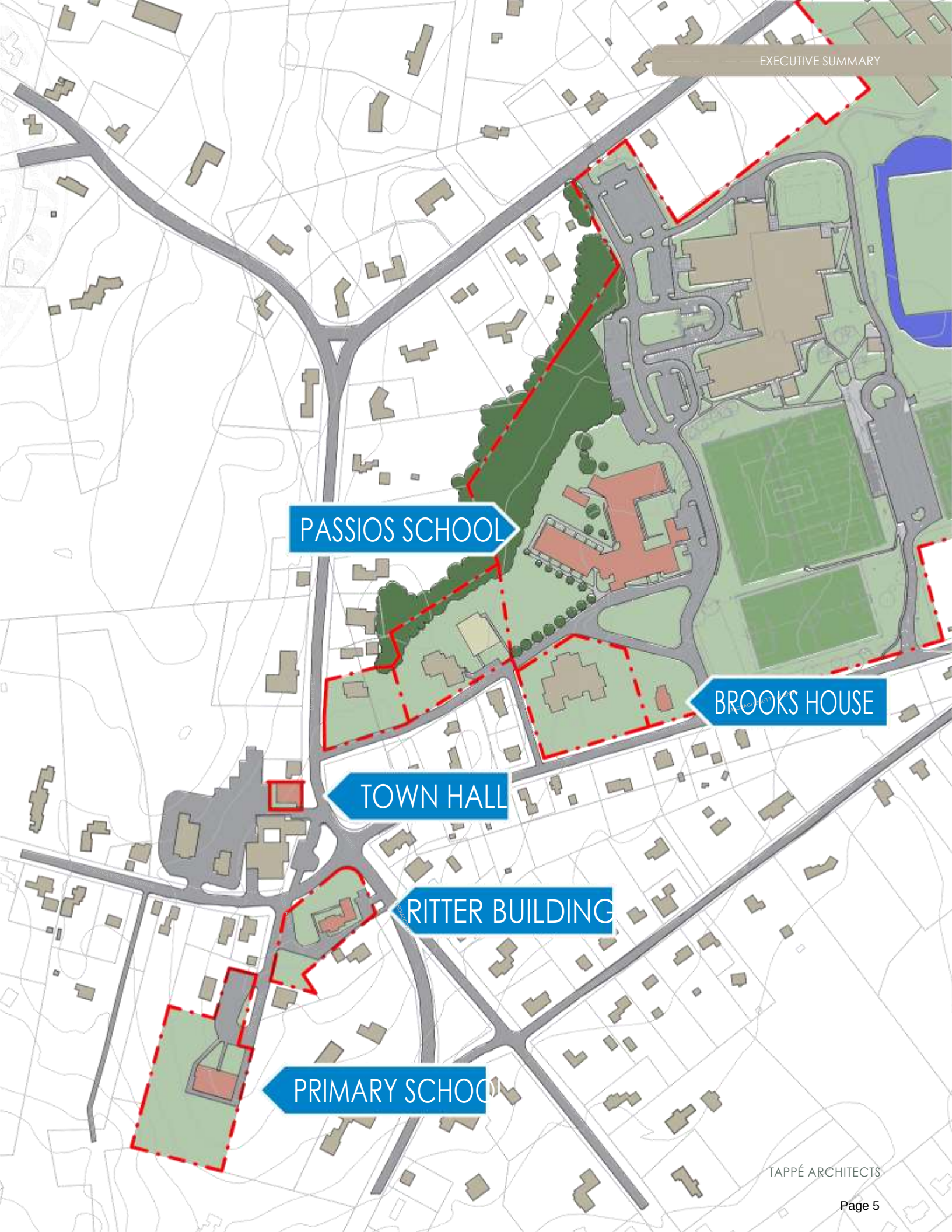
The Ritter Memorial Building was constructed in 1910 with an addition in 1963 and was used as the Public Library before being converted to municipal offices. The building is a wood frame structure with a masonry exterior on two floors. This building is not currently accessible and would require interior and exterior modifications to accommodate all visitors. The building is currently in relatively good condition in terms of the envelope as well as finishes and building systems.

The former Primary School is on a larger site and has been unoccupied since 2005. This former school building was constructed in 1928 and is a combination of masonry bearing walls, concrete slabs and steel roof structure. Because the building is not in use it would require significant upgrades to make it occupiable including interior and exterior stabilization, and complete and comprehensive MEPFP systems replacement. The building is a two story structure with multiple floor levels that would require significant modifications to make it fully accessible. The main entrance is also not accessible.

The Passios Elementary School was constructed in 1952. This is the largest and newest of the Town owned buildings under consideration. The building is a single floor and is generally accessible. The structure and building envelope are in good condition and have received various upgrades over time. Building systems are generally in good condition although some upgrades should be anticipated. The building is not currently air conditioned. The Passios is presently used for School District Administrative offices and public cable TV and a section is leased to an educational collaborative.

SPACE PROGRAM

A space program was developed based on a preliminary space needs assessments prepared by the Town along with additional discussions held between the Town and the Architect to further clarify current and future municipal office needs. The space summary that was developed is preliminary in nature and would need to be more thoroughly developed if the Town proceeds with any municipal building upgrades. The current program anticipates a gross space re-


PASSIOS SCHOOL
BROOKS HOUSE
TOWN HALL
RITTER BUILDING
PRIMARY SCHOOL

EXECUTIVE SUMMARY

quirement of approximately 20,000 SF. For the purposes of the study, an initial assumption of 18,000 sf was used for the preliminary options. This gross square foot number includes support spaces and 900 SF associated with a proposed Public Access Channel studio. It should be noted that the PACC has requested a larger area for their use of approximately 3,000 to 4,000 SF which would increase the overall space program to 23,000 or 24,000 square feet.

PRELIMINARY OPTIONS

The Town Building Reuse Committee reviewed multiple options during the course of the study. Seven preliminary options were ultimately established for review and consideration.

OPTION 1 – PRIMARY SCHOOL RENOVATION & ADDITION

A comprehensive renovation of the existing primary school including reconfiguration of the interior to accommodate new program. This would be combined with construction of an addition adequate for any program that would not fit within the existing building plus an accessible entrance. This option anticipates site work for an expanded and upgraded parking area as well as a new entry.

The Town would incur significant costs associated with this project. The site is farther away from Town center in terms of visibility and the building does not immediately lend itself to the layout of municipal offices without dramatic revisions.

OPTION 1A – PRIMARY SCHOOL SITE, NEW CONSTRUCTION

This option requires the complete demolition and removal of the existing Primary School. At the same location as the existing building a new single story town office building would be constructed to accommodate the anticipated program needs of the Town. Site work for updated parking, roadways and walks would be part of the project.

This proposal would effectively solve the space needs for a town municipal office building with a purpose built new facility on one level. However, the demolition of the old Primary School combined with new construction would be an expensive option for the community.

OPTION 1B – PRIMARY SCHOOL & TOWN HALL RENOVATIONS

This would require the comprehensive renovation of two existing buildings in order to accommodate the anticipated program. This option assumes a complete gut rehabilitation of both buildings including structure, envelope and systems as well as site work.

Having to use two buildings to solve the space needs of the Town was not seen as an overall benefit given that this is the current condition and it is not viewed favorably.

OPTION 2 – RITTER BUILDING RENOVATION & ADDITION; TOWN HALL RENOVATIONS

Option 2 also anticipates accommodating the municipal space needs in two locations. The Ritter Building would be renovated and an addition would be constructed to provide an accessible entrance and more space. Site work at the Ritter Building would include new parking and building entrance scope. The Town Hall would receive a comprehensive interior and exterior renovation and restoration.

The Ritter Building, while an attractive structure that is in good condition, sits on a limited site which makes an expansion difficult to accommodate. If an addition is limited to two stories, all the Town's space needs are not accommodated which is why the Town Hall is also included within this option. Option 2 therefore is also a two building solution which and not a desired outcome.


MARKET

EXECUTIVE SUMMARY

OPTION 3 – TOWN HALL RENOVATION

This option would renovate the Town Hall only. The Town Hall would receive a comprehensive upgrade as well as exterior and structural stabilization. However, at approximately 5,700 SF, it falls well short of offering enough space to accommodate future municipal needs.

While a comprehensive update to the Town Hall would be a benefit to the community, the site does not support any expansion and the building is too small to fit the desired program. Therefore the Town Hall alone is not a viable option for the future space needs of the Town.

OPTION 4 – PASSIOS SCHOOL RENOVATION & PARTIAL DEMOLITION

The Passios School has more space then is required for the anticipated town office space needs. Therefore Option 4 would remove a section of the existing building to limit the size of the building in use by the Town. This plan includes construction of a new parking lot and the possibility of a new field being installed at the location of the demolished building wing.

This option is the preferred option due to the current condition of the school, the ease with which the proposed program can be inserted into the existing site plan, the size which accommodates the entire proposed program and the fact that the building offers the community the benefit of a gym and cafeteria for community use.

OPTION 4A – PASSIOS SCHOOL RENOVATION

A final option that was considered would be to retain the entire school building and rent or lease the portion of the school that is not in use by the Town. This would be a similar arrangement to the situation that currently exists where portions of the building are used by an educational collaborative.

This option is only a viable option if the Town completes an analysis that suggests that there is an ongoing market for tenants with an interest in this kind of space and that the advantages of rental income outweigh the administrative and upkeep costs of operating a larger building. This option would also bring more traffic and cars to the site and increase pressure on parking and traffic. There is no way to predict the function that would use the space making future planning around these issues harder to pin down. If parking was added without removal of any sections of the building, overall impervious area on the site would increase which may impact on site drainage design.

EXECUTIVE SUMMARY

PREFERRED OPTION – PASSIOS SCHOOL & MAINTAIN TOWN HALL

The preferred option selected by the Re-Use Committee is Option 4 which removes a portion of the Passios School and converts the rest of the building into town offices and community space. This option was seen as having many advantages. The Town can continue to benefit from the use of the existing gym and cafeteria for community use. The public access cable studio can be fully accommodated within the anticipated square footage and all programmatic space needs will be met. In addition, the plan offers some potential for future growth as the square footage exceeds the current requirements. The plan could be organized to have a community entrance that is separate from the Town Offices entrance, allowing a portion of the building to be zoned off during after-hours use. Another advantage is the opportunity offered to develop another youth size playing field for Town run athletics programs. With the addition of a parking area for municipal use, an analysis of any future impact on site drainage would be required at a more detailed design phase. However, the removal of a wing of the building may offset the addition of impervious surface associated with the parking area.

The use of a municipal building is relatively low traffic which was viewed as an appropriate and complimentary use of the Middle/High School site given the traffic generated by the school. It is anticipated that any heavy traffic use by a municipal building use would be evenings or weekends. The adjacency of the school to the proposed municipal building also offers overflow parking opportunities for each facility during heavy parking times associated with functions such as school games or municipal hearings or elections.

Of all the buildings examined, the Passios appears to be in the best condition with the greatest potential for future longevity and with the least requirements for ongoing maintenance. The building is also on a single floor which makes it effective and accessible as a public building where patrons are able to access all town departments easily. The single floor adjacency of all spaces also enhances efficiency and collaboration between the Town's various departments.

The Re-Use Committee also developed as part of the preferred option the concept that the Town would continue to maintain and use the existing Town Hall building. The exact use of that building would be developed over time with greater community input but the goal would be to preserve for Town use an architectural and community landmark that helps to define the character of the Town. Options under discussion include a community arts space and the potential use by local organizations.

As part of the municipal building process, the Re-Use Committee will continue to examine the future of the remaining two buildings under consideration, the Ritter and the Primary School. Preliminary discussions call for the possible sale of these properties if a willing buyer can be identified. The ultimate goal would be for the Town to retain two buildings, the Passios and the Town Hall, instead of four buildings, for municipal and community use.

EXISTING CONDITIONS

EXISTING CONDITIONS - PRIMARY SCHOOL & RITTER BUILDING

PRIMARY SCHOOL

The Primary School Building was constructed in 1928. The building is 11,700 SF and sits on a 2.4 +/- acre parcel of land. The Town states that there is no known asbestos in the building. However, black mold is evident in various locations which would require abatement if any renovations were undertaken. The site is adjacent to town utilities although there is a pre-existing septic system on the site.

The building has not been in active use for ten years and this condition has led to a general deterioration of the building. The structure is a combination of masonry exterior and bearing walls, concrete slabs and steel roof trusses. The exterior envelope is in need of repairs including lintel replacement, window and roof replacement and masonry restoration in various locations. Removal of interior walls would need to be carefully analyzed relative to structural integrity of the building.

Water has been entering the building resulting in interior slabs that have cracked and heaved. Interior finishes are generally damaged and in need of repair and all building systems require replacement. The building has multiple interior floor elevations and grade is at a mid-level, making the building generally non-accessible.

RITTER BUILDING

The Ritter Building was constructed in 1910 with an addition in 1963 and served as the Town Library for many years. The overall area is approximately 6,000 SF on two levels. The building is in generally good condition with limited upgrades required. There is currently no sprinkler system or air conditioning.

The building structure is wood with exterior masonry bearing walls. Interior finishes are generally in good condition and the building has been generally well maintained. The current condition is not fully accessible and any anticipated renovation and re-use would need to make modifications to accommodate a main building entrance and bathrooms that is accessible, as well as accommodating the public on both floors of the building.


RITTER
MEMORIAL
BUILDING

EXISTING CONDITIONS - TOWN HALL & PASSIOS SCHOOL

LUNENBURG TOWN HALL

Town Hall was constructed in the 1830's and relocated to its present location in 1867. The building is on a very limited parcel of land and is approximately 6,500 SF on two levels with an unfinished basement.

The building is a wooden post and beam structure and wood framing and siding. There is evidence of some rot in structural members and excess deflection of some floor joists. There has been some water infiltration into the building from the roof and possibly through the foundation walls which are stone. There is a relatively detailed inspection report from 2013 that can be used as a guide to the condition of the building. It should be anticipated that at some point, a structural and envelope upgrade should be undertaken to stabilize the building and upgrade the building envelope. Consideration might also be given to upgrades to the electrical systems.

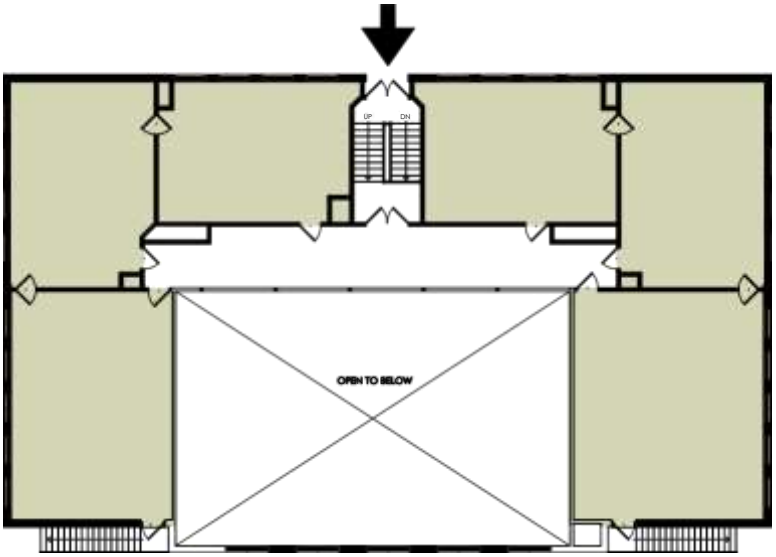
The building is not fully accessible although a lift was installed between floors. The main entrance has steps to enter the building.

PASSIOS ELEMENTARY SCHOOL

The Passios was constructed in 1952 with an addition constructed in 1976. The building is approximately 55,000 SF on one level. The building is in good condition and the Town has made periodic investments in upgrades and enhancements.

The building is a steel frame structure with a brick exterior and wood plank roof framing. Systems in the building are in generally good condition although the fire protection is in need of updating and there is no air conditioning presently. It is recommended that lighting within the building be upgraded and that bathrooms and toilet fixtures be replaced to meet code. It does not appear that classroom entrances have adequate clearances to meet accessibility code and consideration might be given to improving the layout of these locations.

Town improvements over time have included selective reroofing, updated kitchen equipment and gym floor, accessible main entrance, replacement of some sprinkler heads. The building has asbestos containing materials within it including VAT flooring, plaster and caulking, pipe insulation as well as roofing materials that would require abatement if work was done to modify and upgrade the building.



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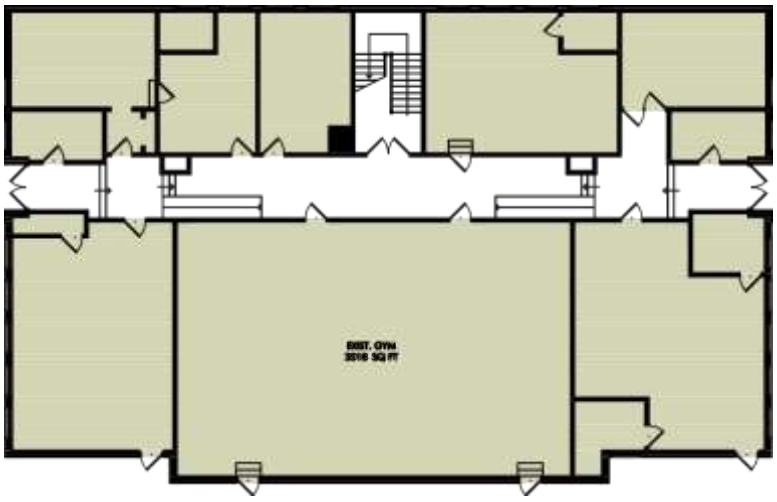
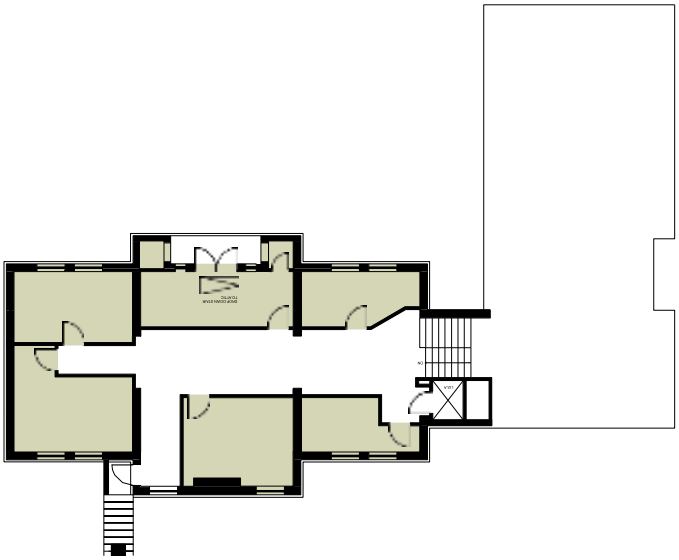


LOWER LEVEL

EXISTING CONDITIONS - OLD PRIMARY SCHOOL

UPPER LEVEL



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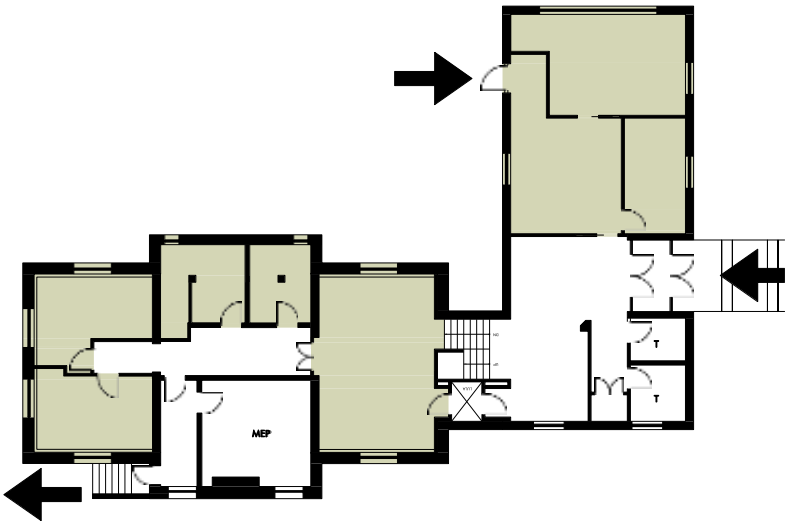
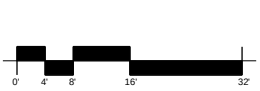
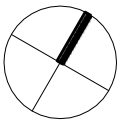




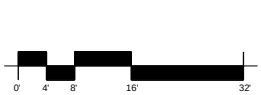


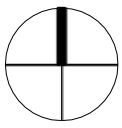
EXISTING CONDITIONS - RITTER BUILDING


BITTER MEMORIAL LIBRARY

UPPER LEVEL

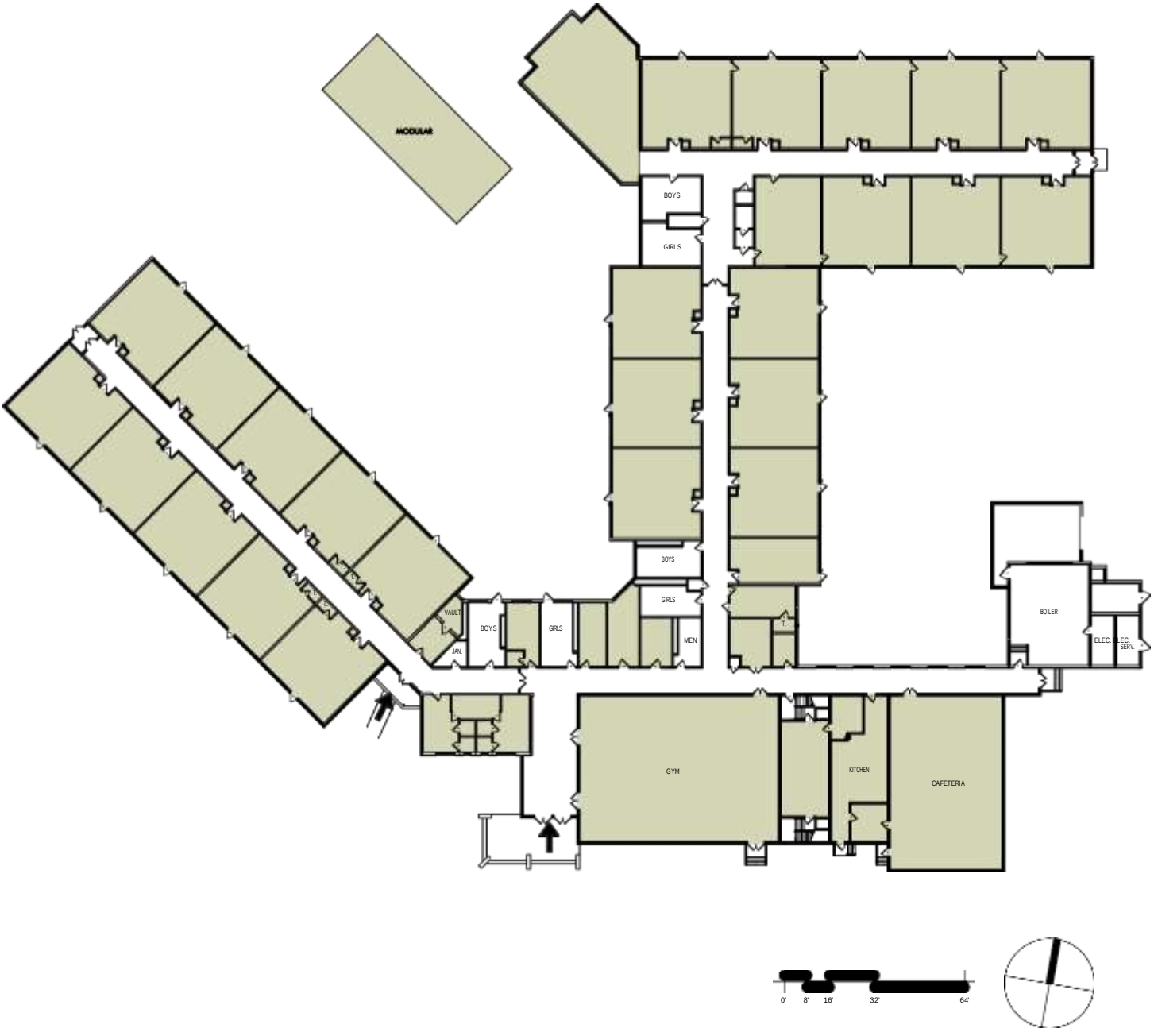
LOWER LEVEL





EXISTING CONDITIONS - LUNENBURG TOWN HALL


TOWN HALL



EXISTING CONDITIONS - PASSIOS SCHOOL

PRELIMINARY OPTIONS
CONCEPTUAL PROGRAM SUMMARY, PLANS & NOTES

TAPPÉ ARCHITECTS BOSTON • TAPPE.COM				Occupants	Adjacency	SF	Notes	
TREASURER / COLLECTOR (public access - near Accounting)								
	Town Collector / Treasurer			1		175	private office w/ desk & table	
	Assistant Treasurer			1		100	open office	
	Accounting Clerk			1		100	open office	
	Record Storage			-		175	row of filing cabinets, 10 lateral files	
	Transaction counter			-		35		
			SUBTOTAL	3		**585**		
ASSESSOR'S OFFICE (public access - near Accounting)								
	Administrative Assistant			2		180	open office	
	Contracted Assessor			1		175	private office w/ desk & table	
	Conference Room			8		240		
	Storage			-			file cabinets	
	Transaction counter			-		35		
			SUBTOTAL	11		**630**		
TOWN MANAGER (public access)								
	Town Manager			1		175	private office w/ desk & table	
	Executive Assistant			1		100	open office	
	Admin. Assistant			1		100		
	Conference Room			8		240		
	Record Storage			-		100	separate room - 10 file cabinets - lateral files	
	Transaction counter			-		35		
			SUBTOTAL	11		**750**		
BUILDING DEPARTMENT (public access)								
	Building Commission / Zoning Officer			1		175	private office w/ desk & table	
	Executive Assistant / ZBA Administrator			1		100	open office	
	Assistant Building Inspector			1		100	desk - part time	
	Conference Room			6		180	shared w/ health, conservation, planning	
	Record Storage			-		195	flat files / files	
	Electrical Inspectors Office			1		100	desk - part time	
	Plumb / Gas Inspectors Office			1		100	desk - part time	
	Weights & Measures			1		100	desk	
	Transaction Counter			-		35		
			SUBTOTAL	12		**1085**		

TAPPÉ ARCHITECTS BOSTON • TAPPE.COM				Occupants	Adjacency	SF	Notes	
BOARD OF HEALTH (public access - with building)								
	Administrative Assistant			1		100	open office	
	Record Storage			-			file cabinets	
	Health Agent			1		175	private office	
	Transaction counter			-		35		
			SUBTOTAL	2		**310**		
CONSERVATION (public access - with building)								
	Administrative Assistant			1		100	open office	
	Record Storage			-				
	Conservation Agent			1		100		
	Historical Commission Office			1		175		
	Transaction Counter			-		35		
			SUBTOTAL	3		**410**		
SCHOOL DISTRICT OFFICES								
	Superintendent Office			1		175	private office	
	Assistant Administrator			1		100		
	HR Business Manager			1		100		
	Admin. Assistant			1		100		
	Conference Room					180		
			SUBTOTAL	4		**655**		
ACCOUNTING (minimal public access - adjacent to tax collector / assessor)								
	Town Accountant			1	Tax Collector & Assessor	175	private office	
	Accounts Payable Clerk			1		100	open office	
	Payroll Clerk / Benefits			1		175	private office w/ table	
	Records Storage			-			lateral files	
			SUBTOTAL	3		**450**		
INFORMATION TECHNOLOGY (no public access)								
	Cable Access Control Room			1	hearing ram	145	desk / storage	
	Cable Access Operations Room			1		175	private office	
	PACC Studio					900	3,200 - 4000 sf Requested	
	I.T. Techs			2		180	desk	
			SUBTOTAL	4		**1400**		

TAPPÉ ARCHITECTS BOSTON • TAPPE.COM				Occupants	Adjacency	SF	Notes	
PLANNING DEPARTMENT (public access - with building)								
	Planning Director			1	Building Dept., Conservation, Health	175	private office	
	Executive Assistant			1		100	open office	
	Record and Plan Storage			1		135	file cabinets and flat files	
	Zoning Board of Appeals			1		175		
	Transaction Counter			-		35		
			SUBTOTAL	4		**620**		
TOWN CLERK (near assessor's offices)								
	Town Clerk			1	Assessor	175	private office	
	Assistant Town Clerk			1		100	open office	
	Registrar of Voters			1		100	open office	
	Record Storage			-		50	lateral files	
	Vault			-		165		
			SUBTOTAL	3		**590**		
OTHER OFFICES								
	Selectman Offices			1		175	private office	
	Veterans Affairs			1		130	private office	
	State Representative			1		175	private office	
	Extra Office			2		130	private office	
	Extra Office			2		130	private office	
			SUBTOTAL	7		**740**		

TAPPÉ ARCHITECTS BOSTON • TAPPE.COM				Occupants	Adjacency	SF	Notes	
	Staff Toilet - Female					60		
	Staff Toilet - Male					60		
	Toilets - Female					150		
	Toilets - Male					150		
	Network Server Room					80		
	Small Conference Room			15		450		
	Medium Conference Room			30		900		
	Hearing Room			100		2000		
	Copy					90	one per floor / area	
	Custodian Closet					60		
	Mechanical Closet							
	Plumbing / Fire Protection Room							
	Main Electrical Room							
	Kitchen / Breakroom					205		
	Elevator							
	Elevator Machine Room							
	Entry Vestibule					100		
	Central Storage					600		
			SUBTOTAL	**145**		**4905**		
TOTAL				**212**		**13130**		
GROSS AREA ADJUSTMENT - 1.5						**19695**		

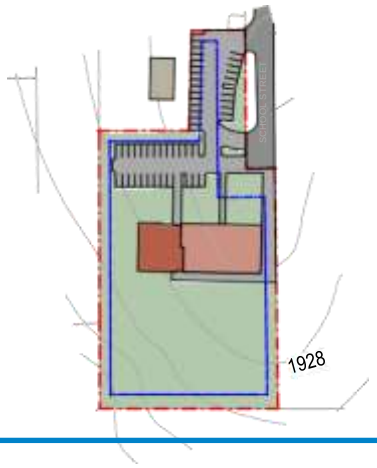
SUMMARY TABLE OF OPTIONS STUDIED

OPTION 1

PRIMARY SCHOOL RENOVATION/ADDITION

Comprehensive renovation of Primary School with addition to accommodate new entrance and required program

18,000 Overall GSF
12,300 SF Renovation
7,700 SF New Construction

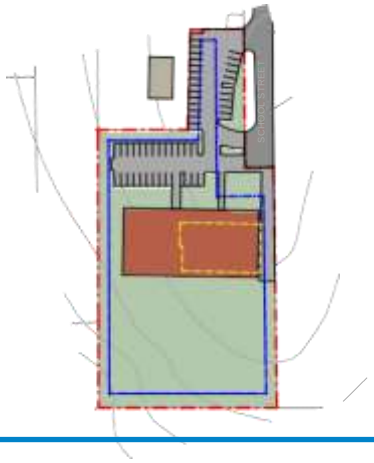


OPTION 1A

PRIMARY SCHOOL SITE NEW CONSTRUCTION

Demolish existing Primary School
Construct new Town Offices building

18,000 Overall GSF New Construction
One floor

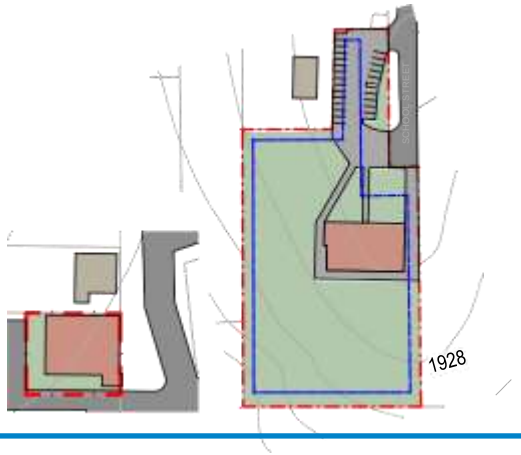


OPTION 1B

PRIMARY SCHOOL & TOWN HALL RENOVATION

Renovate existing Primary School
Renovate existing Town Hall

12,300 SF Renovations - Primary School
6,500 SF Renovations - Town Hall
18,800 SF Renovations - Total in two facilities to accommodate required program

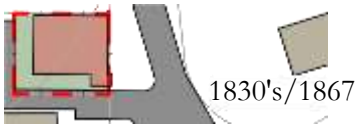


OPTION 2

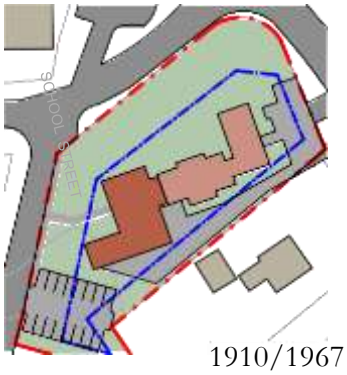
RITTER BUILDING & TOWN HALL RENOVATION & ADDITION

Comprehensive renovation of Town Hall
and renovation of Ritter Building with Addition

12,700 SF - Ritter Building
(5,700 SF renovation / 7,000 SF new construction)
6,500 SF - Renovations to Town Hall
19,200 SF - Total in two facilities to accommodate program



1830's/1867



1910/1967

OPTION 3

TOWN HALL RENOVATIONS

Comprehensive renovation of existing Lunenburg
Town Hall building.

5,700 approx SF - Renovation of
building does not accommodate program

1830's/1867

OPTION 4

PASSIOS SCHOOL RENOVATION & SELECT DEMOLITION

Select renovations to the existing Passios School
building and select demolition

35,000 SF - Area remianing following demolition
22,500 SF - Area of demolition

1952

OPTION 4A

PASSIOS SCHOOL RENOVATIONS & NO DEMOLITION

Maintain entire existing Passios School building
Rent or lease portion of building for non-municipal use.

35,000 SF - Approx. overall existing area

1952

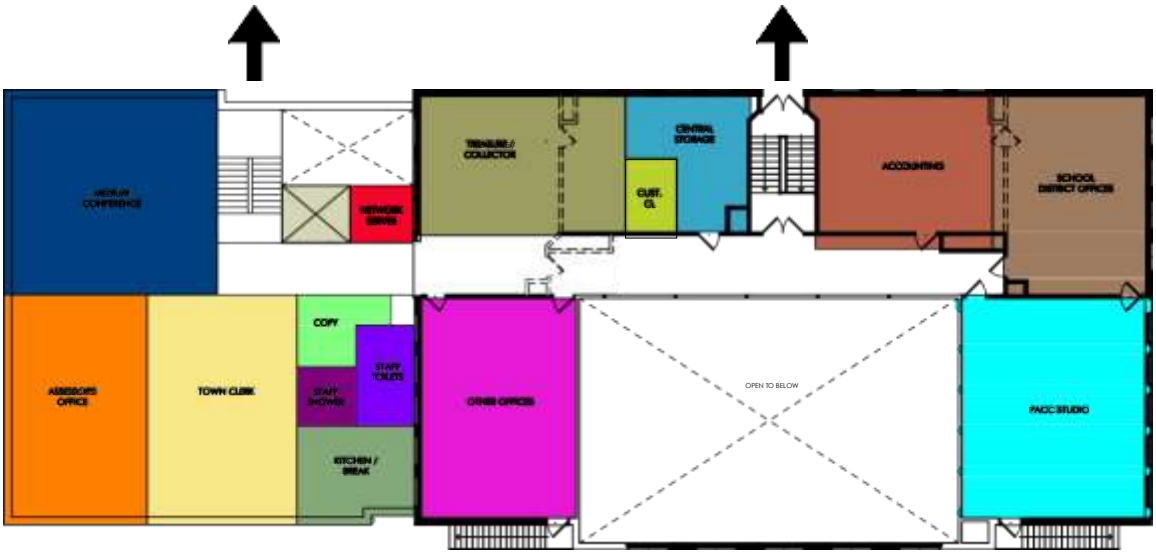
OPTION 1 - PRIMARY SCHOOL - PROPOSED SITE PLAN

ADVANTAGES

- AVAILABLE SITE FOR EXPANSION

DISADVANTAGES

- ADDITION REQUIRED TO ACCOMMODATE PROGRAM
- REQUIRES SIGNIFICANT UPGRADES PRIOR TO REUSE SIGNIFICANT COSTS POSSIBLE
- MULTIPLE STORIES MAKE ADJACENCIES MORE DIFFICULT TO ACCOMMODATE
- BUILDING INTERIOR HAS MULTIPLE LEVEL CHANGES
- FARTHER FROM TOWN CENTER
- GETTING PROGRAM TO FIT REQUIRES INTERIOR RECONFIGURATION OF PARTITIONS ETC, SOME OF WHICH OF WHICH ARE BEARING WALLS



UPPER LEVEL

LOWER LEVEL

OPTION 1 - PRIMARY SCHOOL - PROPOSED PROGRAM DIAGRAM

GENERAL NOTES

- EMPTY FOR 15 YEARS
- MAJOR WATER ISSUES / FLOODING
- MINOR ROOF LEAKS
- WARPED FLOORS
- MULTIPLE LEVEL CHANGES - NOT ADA ACCESSIBLE
- COMPLETE INTERIOR GUT RENOVATION REQUIRED
- EXTERIOR ENVELOPE REPAIRS REQUIRED
  WINDOWS REQUIRE REPLACEMENT
- ADDITION REQUIRED TO FIT ALL PROGRAM SPACE
- MOLD ON INTERIOR
- MEP/FP SYSTEMS IN NEED OF REPLACEMENT

OPTION 2 - RITTER BUILDING - PROPOSED SITE PLAN

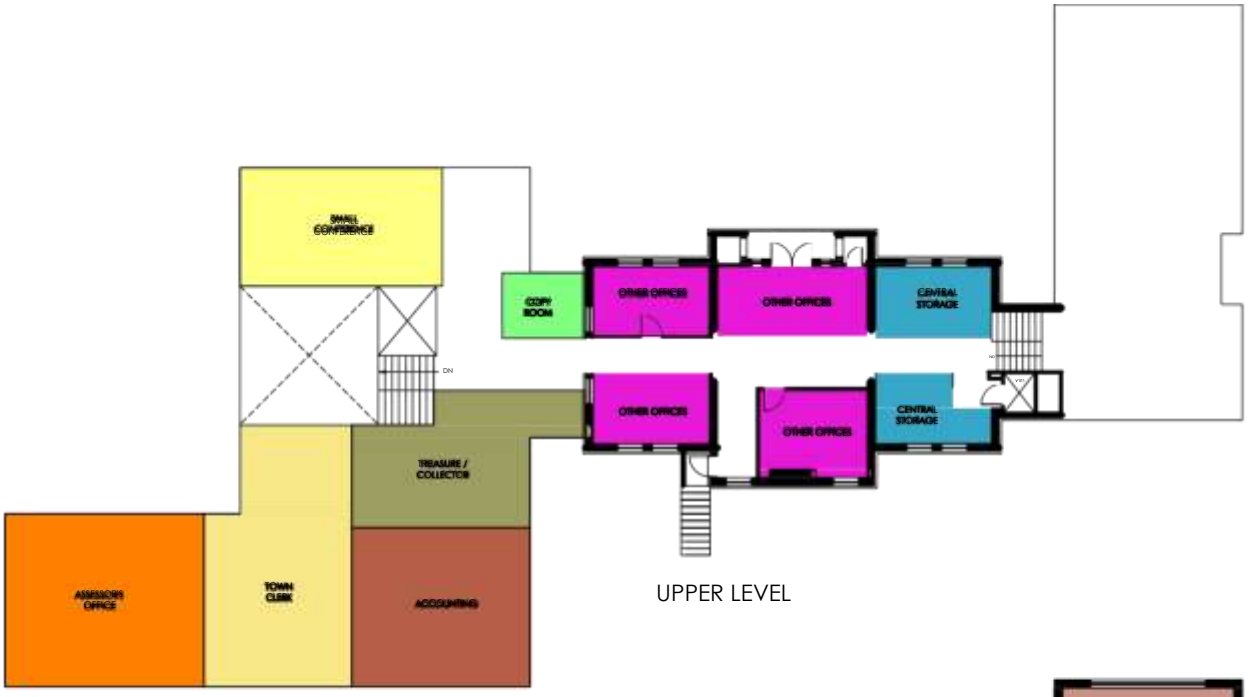
ADVANTAGES

- CENTRAL LOCATION
- HIGHLY VISIBLE BUILDING
- EXISTING BUILDING IS IN GOOD CONDITION

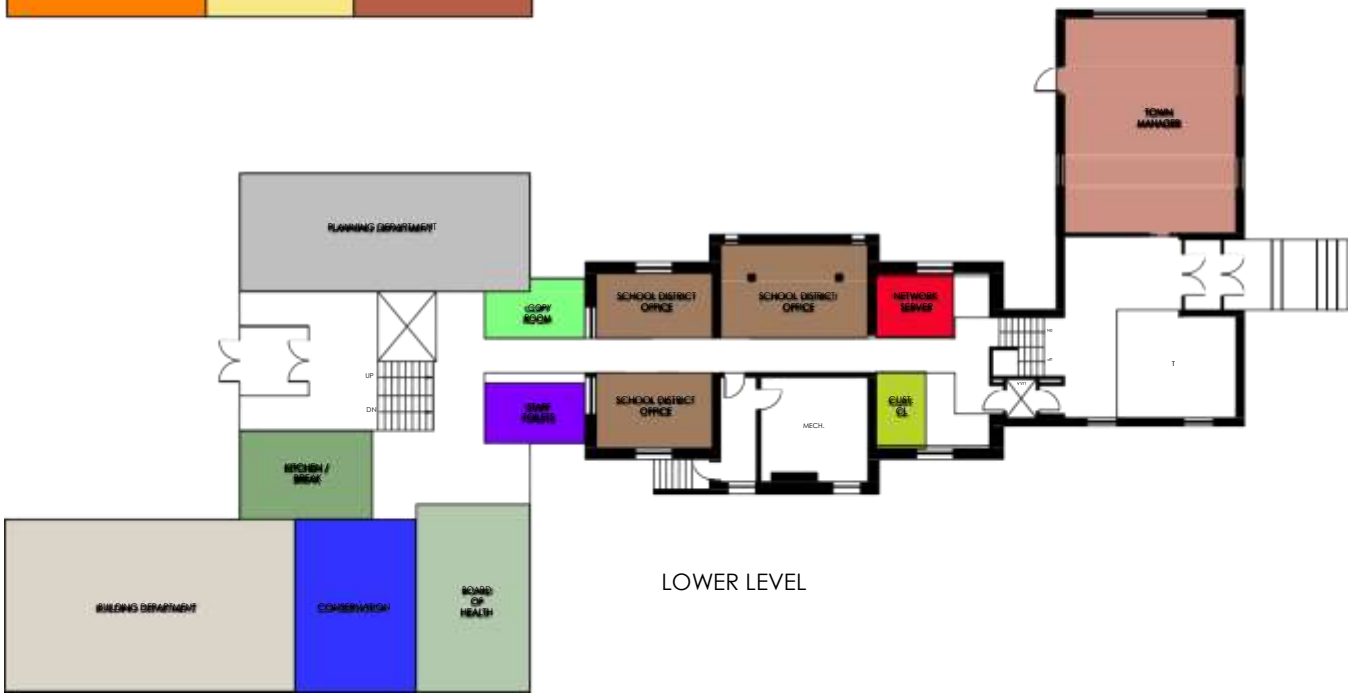
NOTE: HEARING ROOMS, MEETING ROOMS, AND IT / PACC STUDIO COULD BE LOCATED IN THE EXISTING TOWN HALL

DISADVANTAGES

- LIMITED SITE FOR EXPANSION
- EXISTING BUILDING LAYOUT DOES NOT SUPPORT PROGRAM EFFECTIVELY
- MULTIPLE STORIES / LEVELS MAKE ADJACENCIES DIFFICULT
- LIMITED SITE FOR PARKING
- DOES NOT ACCOMMODATE LARGE PROGRAM AREAS: HEARING ROOM, MEDIUM CONFERENCE ROOM, IT / PACC STUDIO
- INADEQUATE SITE AREA TO ACCOMMODATE A TWO STORY ADDITION



UPPER LEVEL



LOWER LEVEL

OPTION 2 - RITTER BUILDING - PROPOSED PROGRAM DIAGRAM

NOTES

EXISTING PLAN AND SITE DO NOT ALLOW FOR EFFICIENT LAYOUT OF PROGRAM OR ADDITION

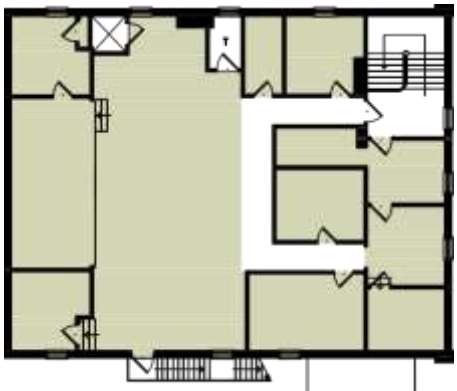
OPTION 3 - TOWN HALL - SELECT INTERIOR RENOVATIONS

ADVANTAGES

- CENTRAL LOCATION
- IMPORTANT ARCHITECTURAL LANDMARK FOR TOWN

DISADVANTAGES

- BUILDING NEEDS REMEDIAL WORK
- NO SITE AREA FOR EXPANSION
- SMALL FLOOR AREA IS DIFFICULT TO FIT PROGRAM
- DOES NOT ACCOMMODATE PROGRAM NEEDS



UPPER LEVEL

LOWER LEVEL

TOWN HALL - SELECT INTERIOR RENOVATIONS

SUMMARY

Comprehensive renovation of existing Lunenburg Town Hall building does not accommodate the required programmatic needs of the Town.

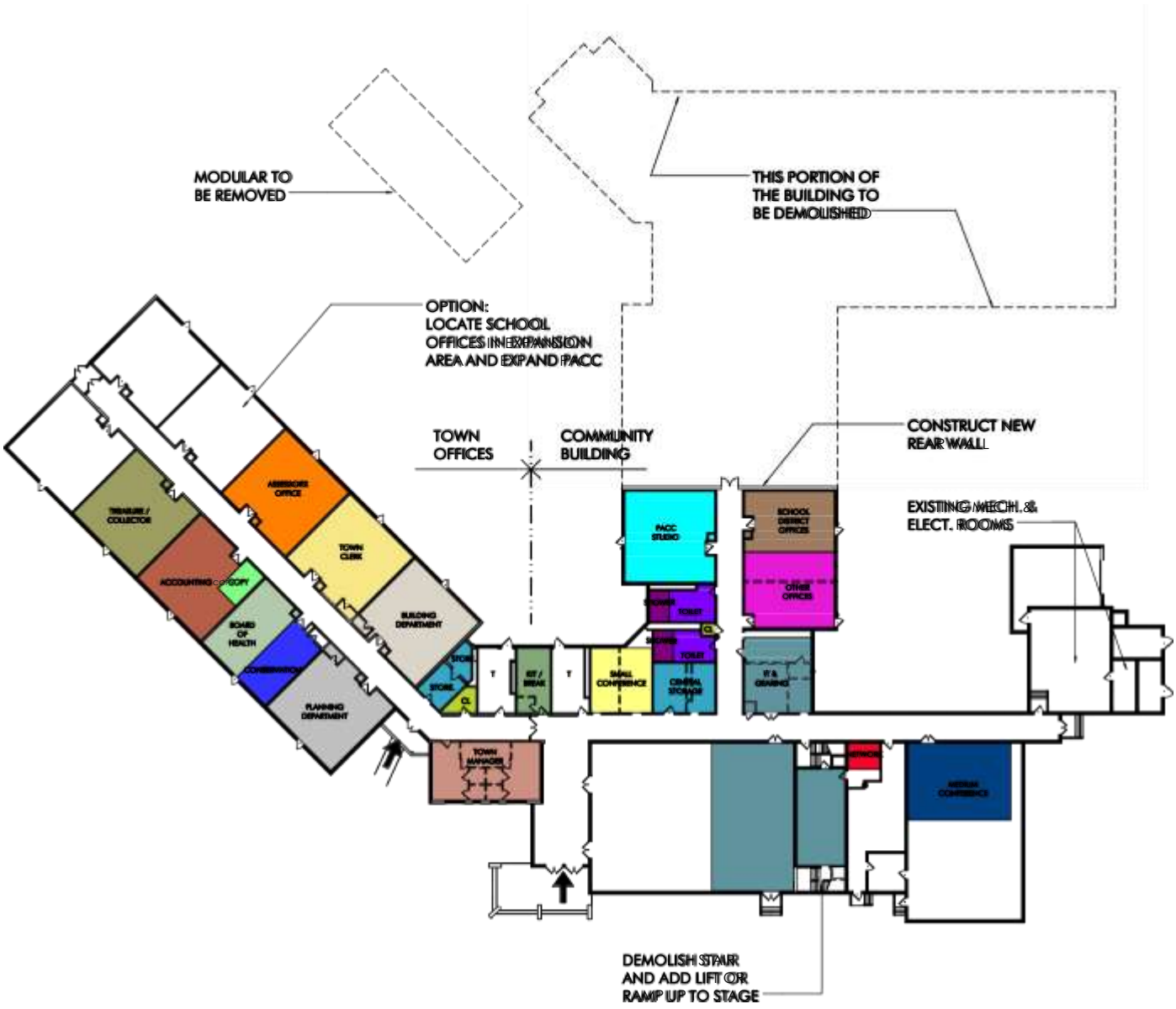
OPTION 4 - PASSIOS SCHOOL - PROPOSED SITE PLAN

ADVANTAGES

- BUILDING IN GOOD CONDITION AND ACTIVE USE
- CLOSE TO TOWN CENTER
- AVAILABLE OVERFLOW PARKING FOR LARGER EVENTS
- NEW PARKING DOUBLES AS LIBRARY OVERFLOW PARKING
- ADEQUATE SQ FT FOR FULL PROGRAM AND EXPANSION
- TOWN RETAINS COMMUNITY USE OF GYM AND CAFETERIA WITH COMMUNITY ENTRANCE POSSIBLE
- PROGRAM GENERALLY LAYS OUT WELL IN EXIST. CLASSROOMS
- LIMITED TRAFFIC VOLUME TO BUILDING WORKS WELL WITH ADJACENT SCHOOL SITE

DISADVANTAGES

- COST ASSOCIATED WITH PARTIAL DEMOLITION / ABATEMENT AND INTERIOR UPGRADES



OPTION 4 - PASSIOS SCHOOL - PROPOSED PROGRAM DIAGRAM

GENERAL NOTES

- SPRINKLERS CURRENTLY IN CORRIDORS ONLY
- CURRENT ENTRIES INTO CLASSROOMS ARE NOT ADA COMPLIANT - NEED TO BE MODIFIED TO BE WIDER
- STAGE IS NOT ADA ACCESSIBLE - NEED TO ADD A LIFT OR RAMP
- GYM CAN REMAIN AND FUNCTION AS THE HEARING ROOM
- CAFETERIA CAN REMAIN AND FUNCTION AS ANOTHER MEETING SPACE
- SPACE AVAILABLE FOR THE FUTURE GROWTH / EXPANSION
- AMPLE HEATING AND ELECTRIC CURRENTLY IN PLACE TO CONTINUE TO SERVE THE BUILDING.
- OPENINGS IN EXISTING CORRIDOR WALLS REQUIRED FOR DEPARTMENTS

SUMMARY TABLE OF OPTIONS STUDIED
EVALUATION MATRIX

	OPTIONS					
ISSUES:	1	1A	1B	2	3	4
ACCOMMODATES ANTICIPATED TOWN OFFICE SPACE NEEDS	●	●	●	●		●
ACCOMMODATES ANTICIPATED SPACE NEEDS IN ONE BUILDING	●	●				●
OFFERS ADDITIONAL PUBLIC AMENITIES						●
OPPORTUNITY TO DEVELOP ADDITIONAL OUTDOOR RECREATIONAL / ATHLETIC SPACES						●
LIMITED RENOVATION SCOPE						●
LIMITED NEW CONSTRUCTION REQUIRED			●			●
READILY ACCOMMODATES MULTIPLE SIZE MEETING / HEARING ROOMS	●	●	●			●
LIMITED ISSUES AROUND ACCESSIBILITY		●				●
SINGLE FLOOR TO ENHANCE ADJACENCIES		●				●
EXISTING BUILDING EASILY ACCOMMODATES SPACE PROGRAM WITH LIMITED INTERIOR MODIFICATIONS		N.A.				●
EXISTING BUILDING IS IN GOOD CONDITION				●		●
ADEQUATE PARKING ON SITE	●	●	●			●
COULD EASILY ACCOMMODATE CABLE T.V. REQUIREMENTS						●

CONCEPTUAL COST MODELS

Preliminary cost models were prepared by PM&C for each preliminary concept. These costs need to be viewed as initial cost opinions based on very limited information. If the Town elected to proceed with any of the options under consideration, a more thorough analysis of the condition of the existing buildings along with more detailed design and scope of any proposed modifications would be required prior to developing a more accurate budget.

However, given that each option uses the same method of analysis for establishing a cost, the comparative value of the choices should be clear and helpful in establishing the more costly vs. less costly outcomes.

The budgets assume a year of escalation which would mean that a project would proceed to construction in 2016. If any project under consideration takes longer to be implemented, industry standard assumes 4% annually in increased construction cost. They project budget also includes a soft cost allowance. This is used to cover design fees, fixtures and furnishings and other miscellaneous project costs that are typically encountered. As is the case with the construction cost, a more detailed analysis would be required if a project were to proceed.

SUMMARY OF PRELIMINARY CONCEPTUAL COST OPTIONS – ***MEETS PROGRAM REQUIREMENTS***			
OPTIONS	CONCEPTUAL CONSTR. COST	CONCEPTUAL SOFT COST	CONCEPTUAL PROJECT COST
OPTION 1 PRIMARY SCHOOL RENOVATION/ADDITION	6,670,000	1,670,000	8,340,000
OPTION 1A PRIMARY SCHOOL SITE NEW CONSTRUCTION	7,200,000	1,800,000	9,000,000
OPTION 1B PRIMARY SCHOOL & TOWN HALL RENOVATIONS	5,680,000	1,420,000	7,100,000
OPTION 2 RITTER BUILDING RENO/ADD & TOWN HALL RENO	5,975,000	1,500,000	7,475,000
OPTION 4 PASSIOS SCHOOL PARTIAL DEMOLITION & RENOVATION	3,820,000	955,000	4,775,000
SUMMARY OF PRELIMINARY CONCEPTUAL COST OPTIONS – ***DOES NOT MEET PROGRAM REQUIREMENTS***			
OPTION 3 TOWN HALL RENOVATION	2,215,000	555,000	2,770,000
OPTION STABILIZE TOWN HALL EXTERIOR	500,000	100,000	600,000
NOTES			
• Escalation is carried at 3% which assumes a construction start of Fall 2016, escalation is typically carried at 4% annually up to construction proceeding • Soft cost is carried at 0.25% as an allowance. These costs typically include design costs, misc. Owner expenses and furniture, fixtures and equipment. Town Hall exterior would have less soft costs as no interior FF&E would be required			

Feasibility Design Submission

Lunenburg Municipal Study

Design Options

Lunenburg, MA

PM&C LLC
20 Downer Avenue
Hingham, MA 02043
(T) 781-740-8007
(F) 781-740-1012

Prepared for:

Tappe Architects, Inc.

December 16, 2015

Lunenburg Municipal Study
Design Options
Lunenburg, MA

16-Dec-15

Feasibility Design Submission

MAIN CONSTRUCTION COST SUMMARY

	Construction Start	Gross Floor Area	$/sf	Estimated Construction Cost
OPTION 1 PRIMARY SCHOOL RENOVATION/ADDITION				
MAJOR RENOVATION		12,300	$200.00	$2,460,000
NEW ADDITION		7,700	$280.00	$2,156,000
REMOVE HAZARDOUS MATERIALS - Allowance				$98,400
SITEWORK - Allowance for modifications only				$500,000
SUB-TOTAL	Sep-16	20,000	$260.72	$5,214,400
ESCALATION TO START - (assumed 4% PA)	3%			$156,432
DESIGN AND PRICING CONTINGENCY	15%			$782,160
SUB-TOTAL	Sep-16	20,000	$307.65	$6,152,992
GENERAL CONDITIONS	10.00%			$0
BONDS	1.25%			$76,912
INSURANCE	1.15%			$70,759
PERMIT				$61,530
OVERHEAD AND FEE	5.0%			$307,650
TOTAL OF ALL CONSTRUCTION OPTION 1	Sep-16	20,000	$333.49	**$6,669,843**

Lunenburg Municipal Study
Design Options
Lunenburg, MA

16-Dec-15

Feasibility Design Submission

OPTION 1A PRIMARY SCHOOL SITE - NEW CONSTRUCTION

DEMOLISH EXISTING BUILDING		12,300	$10.00	$123,000
NEW BUILDING		18,000	$250.00	$4,500,000
REMOVE HAZARDOUS MATERIALS - Allowance				$98,400
SITEWORK - New Sitework				$900,000
SUB-TOTAL	Sep-16	18,000	$312.30	$5,621,400
ESCALATION TO START - (assumed 4% PA)	3%			$168,642
DESIGN AND PRICING CONTINGENCY	15%			$843,210
SUB-TOTAL	Sep-16	18,000	$368.51	$6,633,252
GENERAL CONDITIONS	10.00%			$0
BONDS	1.25%			$82,916
INSURANCE	1.15%			$76,282
PERMIT				$66,333
OVERHEAD AND FEE	5.0%			$331,663
TOTAL OF ALL CONSTRUCTION OPTION 1A	Sep-16	18,000	$399.47	**$7,190,446**

Lunenburg Municipal Study
Design Options
Lunenburg, MA

16-Dec-15

Feasibility Design Submission

OPTION 1B PRIMARY SCHOOL & TOWN HALL RENOVATION

MAJOR RENOVATION AT PRIMARY SCHOOL		12,300	$200.00	$2,460,000
MAJOR RENOVATION AT TOWN HALL		6,500	$220.00	$1,430,000
REMOVE HAZARDOUS MATERIALS - Allowance				$150,400
SITEWORK - Allowance for modifications only				$400,000
SUB-TOTAL	Sep-16	18,800	$236.19	$4,440,400
ESCALATION TO START - (assumed 4% PA)	3%			$133,212
DESIGN AND PRICING CONTINGENCY	15%			$666,060
SUB-TOTAL	Sep-16	18,800	$278.71	$5,239,672
GENERAL CONDITIONS	10.00%			$0
BONDS	1.25%			$65,496
INSURANCE	1.15%			$60,256
PERMIT				$52,397
OVERHEAD AND FEE	5.0%			$261,984
TOTAL OF ALL CONSTRUCTION OPTION 1B	Sep-16	18,800	$302.12	**$5,679,805**

OPTION 2 RITTER BUILDING & TOWN HALL - RENOVATION/ADDITION

MINOR RENOVATION RITTER BUILDING		5,700	$120.00	$684,000
NEW ADDITION RITTER BUILDING		7,000	$280.00	$1,960,000
MAJOR RENOVATION AT TOWN HALL		6,500	$220.00	$1,430,000
REMOVE HAZARDOUS MATERIALS - Allowance				$97,600
SITEWORK - Allowance for modifications only				$500,000
SUB-TOTAL	Sep-16	19,200	$243.31	$4,671,600
ESCALATION TO START - (assumed 4% PA)	3%			$140,148
DESIGN AND PRICING CONTINGENCY	15%			$700,740
SUB-TOTAL	Sep-16	19,200	$287.11	$5,512,488
GENERAL CONDITIONS	10.00%			$0
BONDS	1.25%			$68,906
INSURANCE	1.15%			$63,394
PERMIT				$55,125
OVERHEAD AND FEE	5.0%			$275,624
TOTAL OF ALL CONSTRUCTION OPTION 2	Sep-16	19,200	$311.23	**$5,975,537**

Lunenburg Municipal Study
Design Options
Lunenburg, MA

16-Dec-15

Feasibility Design Submission

OPTION3 TOWN HALLRENOVATION

MAJOR RENOVATION AT TOWN HALL		6,500	$220.00	$1,430,000
REMOVE HAZARDOUS MATERIALS - Allowance				$52,000
SITEWORK - Allowance for minor modifications only				$250,000
SUB-TOTAL	Sep-16	6,500	$266.46	$1,732,000
ESCALATION TO START - (assumed 4% PA)	3%			$51,960
DESIGN AND PRICING CONTINGENCY	15%			$259,800
SUB-TOTAL	Sep-16	6,500	$314.42	$2,043,760
GENERAL CONDITIONS	10.00%			$0
BONDS	1.25%			$25,547
INSURANCE	1.15%			$23,503
PERMIT				$20,438
OVERHEAD AND FEE	5.0%			$102,188
TOTAL OF ALL CONSTRUCTION OPTION 3	Sep-16	6,500	$340.84	**$2,215,436**

OPTION 4 - PASSIOS SCHOOL DEMOLITION/RENOVATION

DEMOLISH EXISTING BUILDING		20,800	$8.00	$166,400
RENOVATION		35,000	$64.82	$2,268,552
SITEWORK - Allowance for new parking lot and minor modifications only				$300,000
SUB-TOTAL	Sep-16	35,000	$78.14	$2,734,952
ESCALATION TO START - (assumed 4% PA)	3%			$82,049
DESIGN AND PRICING CONTINGENCY	15%			$410,243
SUB-TOTAL	Sep-16	35,000	$92.21	$3,227,244
GENERAL CONDITIONS	10.00%			$322,724
BONDS	1.25%			$40,341
INSURANCE	1.15%			$37,113
PERMIT				$32,272
OVERHEAD AND FEE	5.0%			$161,362
TOTAL OF ALL CONSTRUCTION OPTION 4	Sep-16	35,000	$109.17	**$3,821,056**

Lunenburg Municipal Study
Design Options
Lunenburg, MA

16-Dec-15

Feasibility Design Submission

ALLOWANCE TO STABILIZE TOWN HALL EXTERIOR OPTION **$500,000**

This Feasibility cost estimate was produced from drawings, outline specifications and other documentation prepared by Tappe Architects and their design team dated December 7, 2015. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate includes all direct construction costs, general contractor's overhead, fee and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding under Chapter 149 of the Massachusetts General Laws to pre-qualified general conractors, and pre-qualified sub-contractors, open specifications for materials and manufactures.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- Land acquisition, feasibility, and financing costs
- All professional fees and insurance
- Site or existing conditions surveys investigations costs, including to determine subsoil conditions
- All Furnishings, Fixtures and Equipment
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items as indicated in the estimate
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)
- Construction contingency

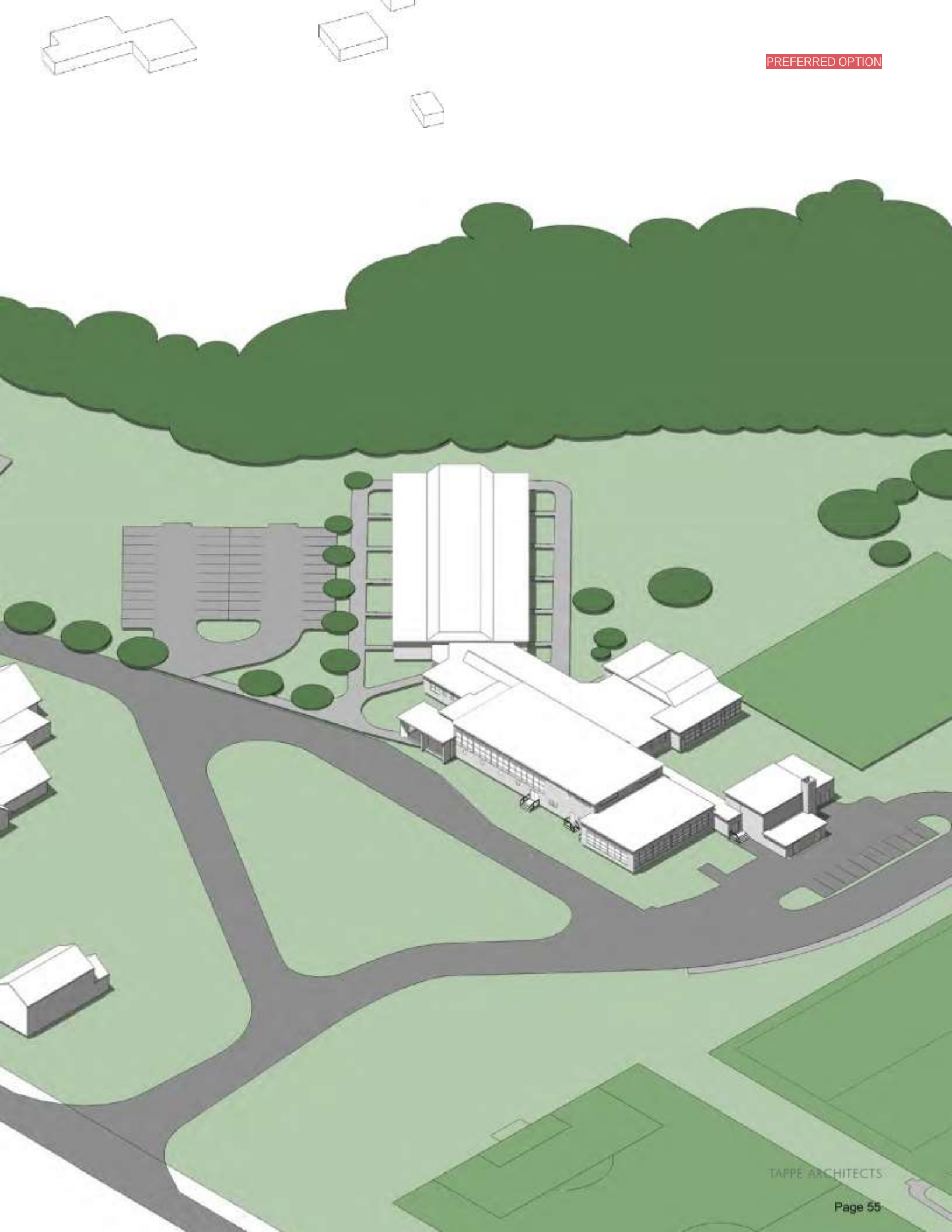
OPTION 4 - PREFERRED OPTION

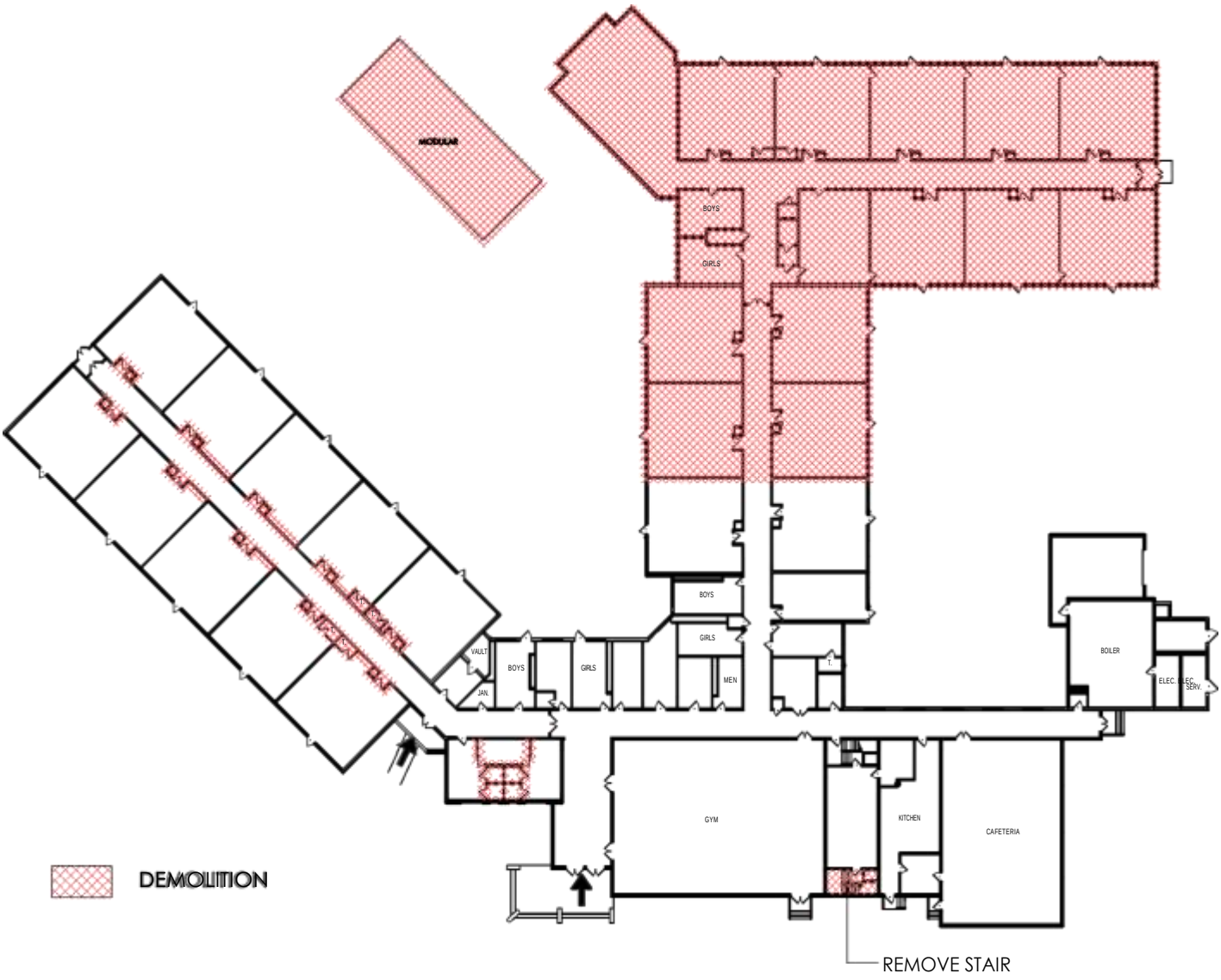
RENOVATION & SELECT DEMO OF EXISTING PASSIOS SCHOOL
MAINTAIN TOWN HALL FOR OTHER USES

OPTION 4 - PREFERRED
RENO & SELECT DEMO OF EXISTING PASSIOS SCHOOL

The Passios School has more space then is required for the anticipated town office space needs. Therefore Option 4 would remove a section of the existing building to limit the size of the building in use by the Town. This plan includes construction of a new parking lot and the possibility of a new field being installed at the location of the demolished building wing.

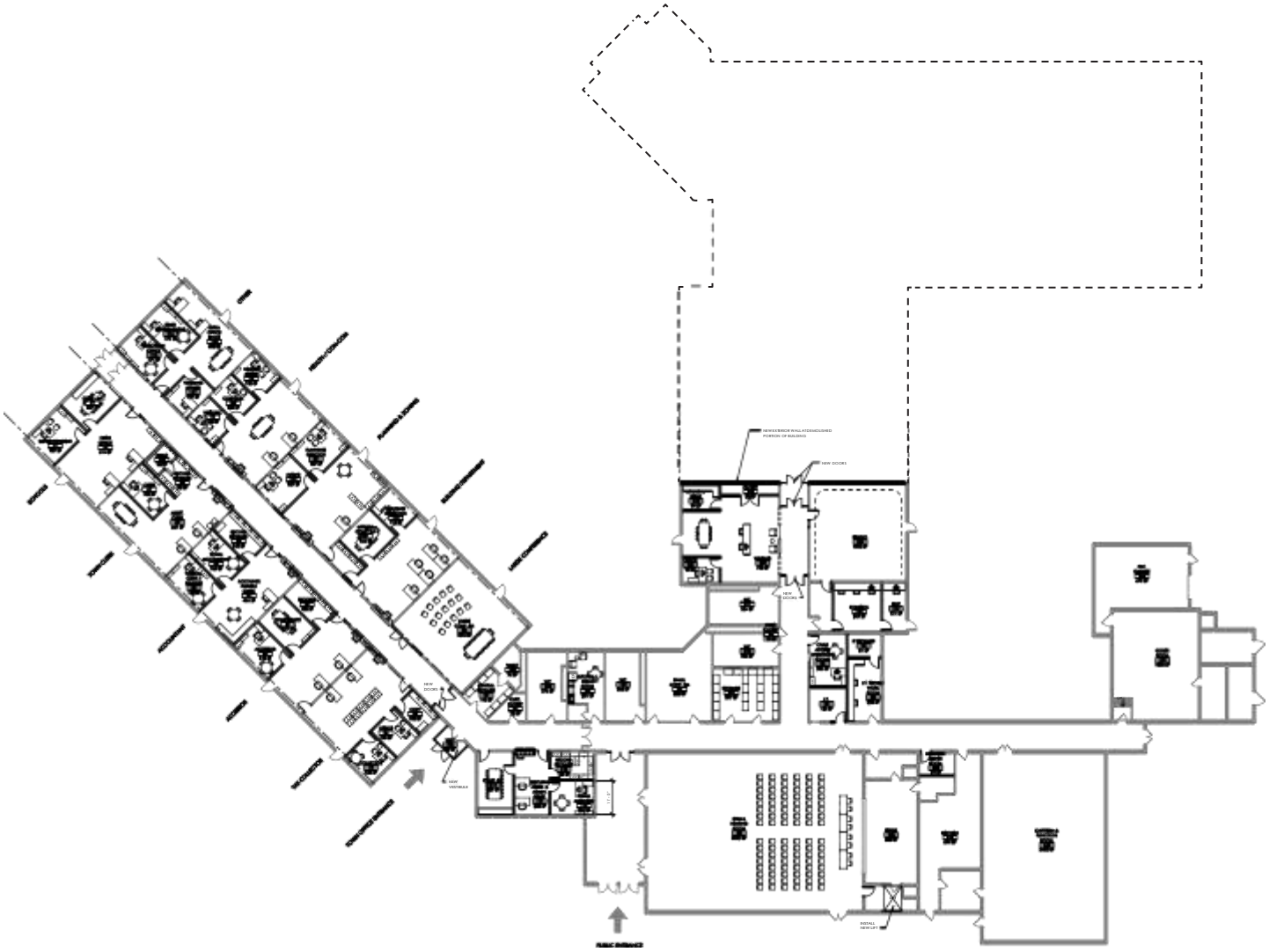
This option is the preferred option due to the current condition of the school, the ease with which the proposed program can be inserted into the existing site plan, the size which accommodates the entire proposed program and the fact that the building offers the community the benefit of a gym and cafeteria for community use.





OPTION 4 - PREFERRED
CONCEPTUAL DEMOLITION PLAN

- DEMOLISH APPROX. 20,800 SQUARE FEET EXISTING BUILDING
- REMOVE FOOTINGS & FOUNDATION, RESTORE SITE
- SELECTIVE DEMOLITION INCLUDES SOME PARTITION, PORTION OF CORRIDOR WALLS
- REMOVE CEILINGS AT CLASSROOMS & CLASSROOM CORRIDOR
- REMOVE CLASSROOM FLOOR FINISHES
- REMOVE BLACK BOARDS AND WHITE BOARDS & CASEWORK AT CLASSROOMS



OPTION 4 - PREFERRED
CONCEPTUAL FURNISHINGS PLAN

- ASSUME RENOVATION OF WC'S (4) NEW FINISHES & FIXTURES ADA ACCESSIBLE
- ASSUME NEW CEILINGS AND LIGHT FIXTURES
- ASSUME ALLOWANCE FOR MISC. UPGRADES TO FIXTURES, CABINETS & HARDWARE FOR ADA COMPLIANCE
- ASSUME PARTIAL CORRIDOR WALL DEMOLITION AND NEW ENTRANCE
- ASSUME NEW TRANSACTION COUNTERS & SECURE GLASS PARTITIONS AT EACH DEPARTMENT
- NEW PAINT, ALL LOCATIONS
- ASSUME NEW FLOORING IN OFFICE WING

OPTION 4 - PREFERRED CONCEPTUAL PERSPECTIVE DIAGRAM

CONCEPTUAL COST MODEL
PREFERRED OPTION 4

PM&C

Lunenburg Municipal Study
Design Options
Lunenburg, MA

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Feasibility Design Submission

OPTION 4 - PASSIOS SCHOOL DEMOLITION/RENOVATION

DEMOLISH EXISTING BUILDING		20,800	$8.00	$166,400
RENOVATION		35,000	$64.82	$2,268,552
SITEWORK - Allowance for new parking lot and minor modifications only				$300,000
SUB-TOTAL	Sep-16	35,000	$78.14	$2,734,952
ESCALATION TO START - (assumed 4% PA)	3%			$82,049
DESIGN AND PRICING CONTINGENCY	15%			$410,243
SUB-TOTAL	Sep-16	35,000	$92.21	$3,227,244
GENERAL CONDITIONS	10.00%			$322,724
BONDS	1.25%			$40,341
INSURANCE	1.15%			$37,113
PERMIT				$32,272
OVERHEAD AND FEE	5.0%			$161,362
TOTAL OF ALL CONSTRUCTION OPTION 4	Sep-16	35,000	$109.17	**$3,821,056**

Lunenburg Municipal Study 16-Dec-15
Design Options
Lunenburg, MA

Feasibility Design Submission GFA 35,000

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 4 - RENOVATION TO PASSIOS SCHOOL						
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$7,450			
	A1020	Special Foundations	$0			
	A1030	Lowest Floor Construction	$52,500	**$59,950**	$1.71	2.6%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$0			
	B1020	Roof Construction	$35,000	**$35,000**	$1.00	1.5%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$81,657			
	B2020	Windows	$59,640			
	B2030	Exterior Doors	$33,040	**$174,337**	$4.98	7.7%
B30	**ROOFING**					
	B3010	Roof Coverings	$4,000			
	B3020	Roof Openings	$5,000	**$9,000**	$0.26	0.4%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$186,785			
	C1020	Interior Doors	$85,800			
	C1030	Specialties/Millwork	$100,100	**$372,685**	$10.65	16.4%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$82,320			
	C3020	Floor Finishes	$178,160			
	C3030	Ceiling Finishes	$175,000	**$435,480**	$12.44	19.2%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$30,000	**$30,000**	$0.86	1.3%
D20	**PLUMBING**					
	D20	Plumbing	$80,000	**$80,000**	$2.29	3.5%

Lunenburg Municipal Study 16-Dec-15
Design Options
Lunenburg, MA

Feasibility Design Submission GFA 35,000

CONSTRUCTION COST SUMMARY

OPTION 4 - RENOVATION TO PASSIOS SCHOOL

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
D30	**HVAC**					
	D30	HVAC	$245,000	**$245,000**	$7.00	10.8%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$175,000	**$175,000**	$5.00	7.7%
D50	**ELECTRICAL**					
	D5010	Complete System	$289,400	**$289,400**	$8.27	12.8%
E10	**EQUIPMENT**					
	E10	Equipment	$6,000	**$6,000**	$0.17	0.3%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$39,500			
	E2020	Movable Furnishings	NIC	**$39,500**	$1.13	1.7%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**HAZMAT REMOVALS**					
	F2010	Building Elements Demolition	$192,400			
	F2020	Hazardous Components Abatement	$124,800	**$317,200**	$9.06	14.0%
	TOTAL DIRECT COST (Trade Costs)			***$2,268,552***	*$64.82*	*100.0%*

PM&C

Lunenburg Municipal Study 16-Dec-15
Design Options
Lunenburg, MA

Feasibility Design Submission GFA 35,000

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 4 - RENOVATION TO PASSIOS SCHOOL						
	GROSS FLOOR AREA CALCULATION						
	First Floor			35,000			
	TOTAL GROSS FLOOR AREA (GFA)				**35,000**	***sf***	
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
	New foundations and slab at vestibule	**1**	ls	7,450.00	7,450		
	No Work in this section						
	SUBTOTAL					7,450	
	A1020 SPECIAL FOUNDATIONS						
	No Work in this section						
	SUBTOTAL						
	A1030 LOWEST FLOOR CONSTRUCTION						
	Allowance for patching of existing slabs disturbed by new work	**35,000**	sf	1.50	52,500		
	SUBTOTAL					52,500	
	TOTAL - FOUNDATIONS						**$59,950**
	A20 BASEMENT CONSTRUCTION						
	A2010 BASEMENT EXCAVATION						
	No items in this section						
	SUBTOTAL					-	
	A2020 BASEMENT WALLS						
	No items in this section						
	SUBTOTAL					-	
	TOTAL - BASEMENT CONSTRUCTION						
	B10 SUPERSTRUCTURE						
	B1010 FLOOR CONSTRUCTION						
	No Work in this section						
	SUBTOTAL					-	
	B1020 ROOF CONSTRUCTION						
	New structure at vestibule	**1**	ls	5,000.00	5,000		
	Allowance for minor upgrades	**1**	ls	30,000.00	30,000		
	SUBTOTAL					35,000	
	TOTAL - SUPERSTRUCTURE						**$35,000**
	B20 EXTERIOR CLOSURE						
	B2010 EXTERIOR WALLS						
	Interior skin						
	New backup at exterior wall where existing building removed	**788**	sf	26.90	21,197		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
OPTION 4 - RENOVATION TO PASSIOS SCHOOL							
	Exterior skin						
	New brick exterior	**788**	sf	45.00	35,460		
	Miscellaneous						
	Allowance to patch/repair existing exterior walls	**1**	ls	25,000.00	25,000		
	SUBTOTAL					81,657	
B2020	**WINDOWS**	*668*	sf				
	Windows at new exterior wall	**338**	sf	85.00	28,730		
	New storefront	**330**	sf	85.00	28,050		
	Backer rod & double sealant	**220**	lf	9.00	1,980		
	Wood blocking at openings	**220**	lf	4.00	880		
	SUBTOTAL					59,640	
B2030	**EXTERIOR DOORS**						
	Glazed entrance doors including frame and hardware; double door	**4**	pr	8,000.00	32,000		
	Backer rod & double sealant	**80**	lf	9.00	720		
	Wood blocking at openings	**80**	lf	4.00	320		
	SUBTOTAL					33,040	
	TOTAL - EXTERIOR CLOSURE						**$174,337**
B30	***ROOFING***						
B3010	**ROOF COVERINGS**						
	Flat roofing						
	New roofing at vestibule	**1**	sf	4,000.00	4,000		
	SUBTOTAL					4,000	
B3020	**ROOF OPENINGS**						
	Repair skylights	**1**	ls	5,000.00	5,000		
	SUBTOTAL					5,000	
	TOTAL - ROOFING						**$9,000**
C10	***INTERIOR CONSTRUCTION***						
C1010	**PARTITIONS**						
	New GWB partitions	**11,445**	sf	13.00	148,785		
	Patch/repair existing walls	**1**	ls	20,000.00	20,000		
	Infill existing openings	**12**	loc	1,500.00	18,000		
	SUBTOTAL					186,785	
C1020	**INTERIOR DOORS**						
	New door, frame and hardware	**39**	ea	1,800.00	70,200		
	New door, frame and hardware	**1**	pr	3,600.00	3,600		
	New door, frame and hardware at corridor doors	2	pr	6,000.00	12,000		
	SUBTOTAL					85,800	
C1030	**SPECIALTIES / MILLWORK**						
	Toilet Partitions	**8**	ea	1,800.00	14,400		
	Toilet accessories	**4**	rms	3,000.00	12,000		
	Backer panels in electrical closets	**1**	ls	1,000.00	1,000		
	Marker boards/tackboards in offices, conference rooms etc.	**1**	ls	15,000.00	15,000		
	Room Signs	**35,000**	gsf	0.40	14,000		
	Fire extinguisher cabinets	**12**	ea	350.00	4,200		
	Janitors Closet Accessories	**1**	ls	1,000.00	1,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
OPTION 4 - RENOVATION TO PASSIOS SCHOOL							
	Staff mailboxes/casework	**1**	ls	5,000.00	5,000		
	Transaction counters/window	**1**	ls	6,000	6,000		
	Modify stage fror new lift	**1**	ls	10,000	10,000		
	Miscellaneous sealants throughout building	**35,000**	sf	0.50	17,500		
	SUBTOTAL					100,100	
	TOTAL - INTERIOR CONSTRUCTION						**$372,685**
C20	***STAIRCASES***						
C2010	**STAIR CONSTRUCTION**						
	No Work in this section						
	SUBTOTAL					-	
C2020	**STAIR FINISHES**						
	No Work in this section						
	SUBTOTAL					-	
	TOTAL - STAIRCASES						
C30	***INTERIOR FINISHES***						
C3010	**WALL FINISHES**						
	Allowance for wall tile in bathrooms	**560**	sf	22.00	12,320		
	Painting throughout space	**35,000**	gsf	2.00	70,000		
	SUBTOTAL					82,320	
C3020	**FLOOR FINISHES**						
	New tile at bathrooms	**1,040**	sf	24.00	24,960		
	Allowance for new floor finishes	**20,800**	sf	6.00	124,800		
	Patch/protect existing finishes	**14,200**	sf	2.00	28,400		
	SUBTOTAL					178,160	
C3030	**CEILING FINISHES**						
	Allowance for new ceiling finishes	**35,000**	sf	5.00	175,000		
	SUBTOTAL					175,000	
	TOTAL - INTERIOR FINISHES						**$435,480**
D10	***CONVEYING SYSTEMS***						
D1010	**ELEVATOR**						
	New stage lift	**1**	ea	30,000.00	30,000		
	SUBTOTAL					30,000	
	TOTAL - CONVEYING SYSTEMS						**$30,000**
D20	***PLUMBING***						
D20	**PLUMBING, GENERALLY**						
	New plumbing fixtures	**16**	loc	5,000.00	80,000		
	SUBTOTAL					80,000	
	TOTAL - PLUMBING						**$80,000**
D30	***HVAC***						
D30	**HVAC, GENERALLY**						
	HVAC; modify existing systems for new layouts	**35,000**	gsf	7.00	245,000		
	SUBTOTAL					245,000	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
OPTION 4 - RENOVATION TO PASSIOS SCHOOL							
	TOTAL - HVAC						**$245,000**
D40	***FIRE PROTECTION***						
D40	**FIRE PROTECTION, GENERALLY**						
	Sprinkler system; modify/upgrade existing	**35,000**	gsf	5.00	175,000		
	SUBTOTAL					175,000	
	TOTAL - FIRE PROTECTION						**$175,000**
D50	***ELECTRICAL***						
D5010	**COMPLETE ELECTRICAL SYSTEM**						
	New lighting and controls	**35,000**	gsf	5.00	175,000		
	New power and distribution to renovated spaces	**20,800**	sf	3.00	62,400		
	Modify Fire Alarm system	**20,800**	sf	1.50	31,200		
	New Tele/Data	**20,800**	sf	1.00	20,800		
	SUBTOTAL					289,400	
	TOTAL - ELECTRICAL						**$289,400**
E10	***EQUIPMENT***						
E10	**EQUIPMENT, GENERALLY**						
	New kitchenette	**1**	ls	6,000.00	6,000		
	SUBTOTAL					6,000	
	TOTAL - EQUIPMENT						**$6,000**
E20	***FURNISHINGS***						
E2010	**FIXED FURNISHINGS**						
	Entry mats & frames - recessed with carpet/rubber strips	**200**	sf	45.00	9,000		
	Manual operated roller shades	**1**	ls	500.00	500		
	Allowance for casework	**120**	lf	250.00	30,000		
	SUBTOTAL					39,500	
E2020	**MOVABLE FURNISHINGS**						
	All movable furnishings to be provided and installed by owner						
	SUBTOTAL					NIC	
	TOTAL - FURNISHINGS						**$39,500**
F10	***SPECIAL CONSTRUCTION***						
F10	**SPECIAL CONSTRUCTION**						
	No Work in this section						
	SUBTOTAL						
	TOTAL - SPECIAL CONSTRUCTION						
F20	***SELECTIVE BUILDING DEMOLITION***						
F2010	**BUILDING ELEMENTS DEMOLITION**						
	Extensive demolition of renovation areas; finishes, doors, MEP systems, casework and specialties	**20,800**	sf	8.00	166,400		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 4 - RENOVATION TO PASSIOS SCHOOL						
	Gut demolition of bathrooms	**4**	loc	5,000.00	20,000		
	Demolition of stair	**1**	ls	6,000.00	6,000		
	See main summary for demolition of existing buildings						
	SUBTOTAL					192,400	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
	Allowance to remove VAT	**20,800**	sf	6.00	124,800		
	SUBTOTAL					124,800	
	TOTAL - SELECTIVE BUILDING DEMOLITION						**$317,200**

EXISTING CONDITIONS - MEP/FP REPORTS
EXISTING CONDITIONS - STRUCTURAL REPORT

October 26, 2015

LUNENBURG MUNICIPAL STUDY
LUNENBURG, MA

Existing Conditions
Fire Protection/ Plumbing/ HVAC/ Electrical

I. TOWN HALL

There were no existing MEP plans available to assist with the existing conditions review for the Town Hall.

A. Fire Protection:

1. The building does not have a sprinkler system.

2. There is limited space smoke detector coverage.

B. Plumbing:

1. Domestic Water - The building is supplied by a 1 inch water service which feeds two meters, one for building use and the other for irrigation. There are two single fixture toilet rooms on the first floor and one on the second floor with a sink in each room**.**

2. Domestic Hot Water - The building is serviced by a small (30 gallon) electric water heater located in the basement.

3. Sanitary - The building is serviced by a 4 inch sanitary main exiting towards the front of the building.

4. Natural Gas - The building is supplied with natural gas serving hot air furnace units in the building for space heating. The meter is located at the front of the building. The capacity of the service is not known.

5. Roof Drainage - There is no roof drainage system interior to the building.

C. HVAC:

1. The heating system consists of four (4) gas-fired furnace units. Two are located in the basement, which serve the first floor and two are located in the attic serving the second floor. Each unit has a duct connected to an exterior louver for outside air ventilation. The units are 7 to 8 years old and are in good condition.

2. Each furnace system has a DX coil connected to an outdoor condensing unit to provide cooling to the respective zones. Two units are manufactured by Trane and two are manufactured by York. These were probably installed at different times, but still about 7 to 8 years old. The units have R-22 refrigerant, which

could involve added cost if servicing is needed in the near future. These units appear to be in good condition.

3. The furnace units are controlled by programmable thermostats.

4. The main entrance and exit doors do not have heaters installed nearby to help negate heat loss from infiltration.

5. Some spaces have electric baseboard heating.

6. The elevator machine space is in the basement and is open to the basement. There is no machine room vent to the outdoors.

D. Electrical:

1. This building dates back to the1800s, and there have been var ous electrical upgrades over time.

2. The electric service consists of two 200A, 240V, 1 phase, and one 100A, 240V, 1 phase services. Main service disconnects are located in the basement of the building.

3. There were reports of nuisance tripping of branch breakers due to the use of portable electric heaters.

4. Building lighting consists of various types including surface acrylic wrap-around lens type and recessed lensed luminaires.

5. General power including duplex receptacles throughout the building appears to be adequate for present space usage, although receptacle quantities are minimal.

6. The building has a fire alarm system.

7. The building has a limited security system.

8. In general, the overall condition of the electrical systems and equipment are just adequate for the present programmed use of the building. Noting that overloading of branch circuits occurs during colder months. Any changes and/or upgrades to the mechanical system to serve a change in space programming would more than likely trigger an increase in the service size requiring an upgrade to the service entrance, main service disconnect, and distribution equipment.

9. Lighting upgrades including controls are recommended to suit building use program changes within the building.

10. A change in the use group of this building with regard to adding a meeting hall would trigger an upgrade of the fire alarm system to provide code required voice evacuation.

II. RITTER BUILDING

A. Fire Protection:

1. The building does not have a sprinkler system.

B. Plumbing:

1. Domestic Water - The building appears to have a 1 inch water service. There are two single fixture toilet rooms on the first floor with a sink in each room. A sink with ejector is located at the lower level.

2. Domestic Hot Water - The building is serviced by a small (20 gallon) electric water heater located in the lower level mechanical room.

3. Sanitary - The ejector pump discharge for the sink at the lower level appears to exit the building separately from the two toilet rooms which are at the front of the building.

4. Natural Gas - The building is supplied with natural gas serving two hot water boilers located in the lower level mechanical space. The meter is located at grade just outside the mechanical room. The capacity of the service is not known.

5. Roof Drainage - There is no roof drainage system interior to the building.

C. HVAC:

1. The heating system consists of two gas-fired hot water boilers, each with a circulation pump. There are three hot water zones, each served by a circulator. The boilers are direct vented to the exterior wall with corresponding combustion air intakes connected to each boiler. The gas vent for at least one of the boilers appears to be less than 3 ft. above grade, which could be a safety hazard during times with high snow depths. The units appear to be in good condition.

2. Each of the heating zones is controlled by a programmable thermostat located in the mechanical space. There are space temperature sensors located in each of the zones that are wired back to the programmable thermostats.

3. Space heating is provided by hot water fin-tube radiation.

4. The main entrance vestibule has two cabinet heaters. There is another cabinet heater installed near a lower level exit door.

5. The building is not fully air conditioned. There are three ductless split air conditioning systems with outdoor condensing units and indoor fan DX units serving specific areas. They all appear to be about 1.5 tons capacity each. Offices on the second floor have window air conditioning units.

6. There is no mechanical outdoor air ventilation. The building is largely naturally ventilated using operable windows. However, not all areas comply with natural ventilation requirements.

D. Electrical:

1. Electric service to the building is overhead, 200A, 120/240V, 1 phase. Main service disconnect switch is located in the lower level Boiler Room.

2. There are no reports of problems with the distribution system and/or issues with nuisance tripping of branch or feeder breakers.

3. Building lighting consists of various types including surface acrylic wrap-around lens type and recessed lensed luminaires.

4. General power including duplex receptacles throughout the building appears to be adequate for present space usage.

5. In general, the overall condition of the electrical systems and equipment are in good condition, and are adequate for the present programmed use of the building. Any changes and/or upgrades to the mechanical system to serve a change in space programming would more than likely trigger an increase in the service size requiring an upgrade to the service entrance, main service disconnect, and distribution equipment.

6. Lighting upgrades including controls are recommended to suit building use program changes within the building.

7. A change in the use group of this building with regard to adding a meeting hall would trigger an upgrade of the fire alarm system to provide code required voice evacuation.

III. PASSIOS SCHOOL

A. Fire Protection:

1. The building has two sprinkler services. One is located in a small janitor's closet across from the administration area near the main entrance. The other is in a storage room off of the Cafeteria. Both appear to have been originally installed in 1950.

B. Plumbing:

1. Domestic Water - The building water service enters into the storage room adjacent to the cafeteria and next to the kitchen. There are three sets of Boys and Girls rooms located in the facility near each wing. Individual sinks are located in a few areas. There is a drinking fountain located in the cafeteria.

2. Domestic Hot Water - The building has two large indirect hot water fired storage heaters located in the boiler room.

3. Sanitary - There are no plumbing plans available for review of the sanitary drainage system. No information was obtained during the walk-through.

4. Natural Gas - The building is supplied with natural gas serving three hot water boilers located in the boiler room. The capacity of the gas service is at least 13,000 MBH based on the boiler input ratings.

5. Roof Drainage - The roof drainage system was not reviewed.

C. HVAC:

1. The heating system consists of three gas-fired hot water boilers, each with a circulation pump. Each boiler is from a different manufacturer and are different styles. The oldest is a Weil McLain cast iron, which has a dual fuel burner. The second boiler is a Buderus cast iron condensing boiler, and the third is a Viessmann stainless steel condensing boiler. The boilers are direct vented to the exterior wall with a draft fan installed in each gas vent. This boiler system also serves the existing high school building through a buried piping system. The units appear to be in good condition and are reportedly running well.

2. Space heating in the classrooms is provided by hot water fin-tube radiation. Unit ventilators are provided in the cafeteria in addition to fin tube radiation.

3. Classroom ventilation is provided by central heating and ventilation units and a classroom exhaust system.

4. The multipurpose room (gym/ auditorium) is ventilated by two heating and ventilating units located above the stairs on either side of the stage.

5. The building is not air conditioned. Some rooms have window air conditioning systems.

6. There is no mechanical outdoor air ventilation. The building is largely naturally ventilated using operable windows. However, not all areas comply with natural ventilation requirements.

D. Electrical:

1. This building has adequate capacity in both its normal power distribution system and backup generator power system to serve current and future building needs.

2. Lighting types vary throughout the building.

3. The building has a fire alarm system.

4. The building has a security system.

5. In general, the overall condition of the electrical systems and equipment are in good condition, and are adequate for the present programmed use of the building.

6. Lighting upgrades including controls are recommended to suit building use program changes within the building.

7. A change in the use group of this building with regard to adding a meeting hall would trigger an upgrade of the fire alarm system to provide code required voice evacuation for the meeting room.

III. PRIMARY SCHOOL

A. Fire Protection:

1. The building has a sprinkler system. Due to its age, it is recommended that it be completely replaced.

B. Plumbing:

1. The building water plumbing systems are out of service and antiquated. Any use of the building would require a complete demo and replacement of the systems.

C. HVAC:

1. The building heating system consists of one oil-fired cast iron boiler. The buried oil tank has been removed, therefore the boiler is no longer functional. The boiler room has been completely flooded in the past. Compete replacement of the entire heating system is recommended, if the building is to be reoccupied.

D. Electrical:

1. This structure has not been unoccupied for roughly 15 years, and has experienced water damage throughout the building.

2. Most of the lighting appears to be original equipment. Quantities of receptacles are minimal.

3. Lighting controls and manual fire alarm pull stations are mounted higher than today's code height of 48 inches.

4. The building has a fire alarm system, device locations and quantities are not per current code.

5. Based on the present condition of this structure, we recommend a complete removal and replacement of all electrical systems. This would include all electrical lighting, controls, receptacles, panelboards, and distribution equipment back to the electrical service entrance point.

6. We recommend a complete new fire alarm system.

LUNENBURG MUNICIPAL STUDY
LUNENBURG, MA

EXISTING CONDITIONS REPORT

I. TOWN HALL

There were no existing MEP plans available to assist with the existing conditions review for the Town Hall.

A. Fire Protection:

1. The building does not have a sprinkler system.

2. There is limited space smoke detector coverage.

B. Plumbing:

1. Domestic Water: The building is supplied by a 1 inch water service which feeds two meters, one for building use and the other for irrigation. There are two single fixture toilet rooms on the first floor and one on the second floor with a sink in each room.

2. Domestic Hot Water: The building is serviced by a small (30 gallon) electric water heater located in the basement.

3. Sanitary: The building is serviced by a 4 inch sanitary main exiting towards the front of the building.

4. Natural Gas: The building is supplied with natural gas serving hot air furnace units in the building for space heating. The meter is located at the front of the building. The capacity of the service is not known.

5. Roof Drainage: There is no roof drainage system interior to the building.

C. HVAC:

1. The heating system consists of four gas-fired furnace units. Two are located in the basement, which serve the first floor and two are located in the attic serving the second floor. Each unit has a duct connected to an exterior louver for outside air ventilation. The units are 7 to 8 years old and are in good condition.

2. Each furnace system has a DX coil connected to an outdoor condensing unit to provide cooling to the respective zones. Two units are manufactured by Trane and two are manufactured by York. These were probably installed at different times, but still about 7 to 8 years old. The units have R-22 refrigerant, which could involve added cost if servicing is needed in the near future. These units appear to be in good condition.

3. The furnace units are controlled by programmable thermostats.

4. The main entrance and exit doors do not have heaters installed nearby to help negate heat loss from infiltration.

5. Some spaces have electric baseboard heating.

6. The elevator machine space is in the basement and is open to the basement. There is no machine room vent to the outdoors.

D. Electrical:

1. This building dates back to the 1800's, and there have been various electrical upgrades over time.

2. The electric service consists of two 200A, 240V, 1 phase, and one 100A, 240V, 1 phase services. Main service disconnects are located in the basement of the building.

3. There were reports of nuisance tripping of branch breakers due to the use of portable electric heaters.

4. Building lighting consists of various types including surface acrylic wrap-around lens type and recessed lensed luminaires.

5. General power including duplex receptacles throughout the building appears to be adequate for present space usage, although receptacle quantities are minimal.

6. The building has a fire alarm system.

7. The building has a limited security system.

8. In general, the overall condition of the electrical systems and equipment are just adequate for the present programmed use of the building. Noting that overloading of branch circuits occurs during colder months. Any changes and/or upgrades to the mechanical system to serve a change in space programming would more than likely trigger an increase in the service size requiring an upgrade to the service entrance, main service disconnect, and distribution equipment.

9. Lighting upgrades including controls are recommended to suit building use program changes within the building.

10. A change in the use group of this building with regard to adding a meeting hall would trigger an upgrade of the fire alarm system to provide code required voice evacuation.

II. RITTER BUILDING

A. Fire Protection:

1. The building does not have a sprinkler system.

B. Plumbing:

1. Domestic Water: The building appears to have a 1 inch water service. There are two single fixture toilet rooms on the first floor with a sink in each room. A sink with ejector is located at the lower level.

2. Domestic Hot Water: The building is serviced by a small (20 gallon) electric water heater located in the lower level mechanical room.

3. Sanitary: The ejector pump discharge for the sink at the lower level appears to exit the building separately from the two toilet rooms which are at the front of the building.

4. Natural Gas: The building is supplied with natural gas serving two hot water boilers located in the lower level mechanical space. The meter is located at grade just outside the mechanical room. The capacity of the service is not known.

5. Roof Drainage: There is no roof drainage system interior to the building.

C. HVAC:

1. The heating system consists of two gas-fired hot water boilers, each with a circulation pump. There are three hot water zones, each served by a circulator. The boilers are direct vented to the exterior wall with corresponding combustion air intakes connected to each boiler. The gas vent for at least one of the boilers appears to be less than 3 feet above grade, which could be a safety hazard during times with high snow depths. The units appear to be in good condition.

2. Each of the heating zones is controlled by a programmable thermostat located in the mechanical space. There are space temperature sensors located in each of the zones that are wired back to the programmable thermostats.

3. Space heating is provided by hot water fin-tube radiation.

4. The main entrance vestibule has two cabinet heaters. There is another cabinet heater installed near a lower level exit door.

5. The building is not fully air conditioned. There are three ductless split air conditioning systems with outdoor condensing units and indoor fan DX units serving specific areas. They all appear to be about 1.5 tons capacity each. Offices on the second floor have window air conditioning units.

6. There is no mechanical outdoor air ventilation. The building is largely naturally ventilated using operable windows. However, not all areas comply with natural ventilation requirements.

D. Electrical:

1. Electric service to the building is overhead, 200A, 120/240V, 1 phase. Main service disconnect switch is located in the lower level Boiler Room.

2. There are no reports of problems with the distribution system and/or issues with nuisance tripping of branch or feeder breakers.

3. Building lighting consists of various types including surface acrylic wrap-around lens type and recessed lensed luminaires.

4. General power including duplex receptacles throughout the building appears to be adequate for present space usage.

5. In general, the overall condition of the electrical systems and equipment are in good condition, and are adequate for the present programmed use of the building. Any changes and/or upgrades to the mechanical system to serve a change in space programming would more than likely trigger an increase in the service size requiring an upgrade to the service entrance, main service disconnect, and distribution equipment.

6. Lighting upgrades including controls are recommended to suit building use program changes within the building.

7. A change in the use group of this building with regard to adding a meeting hall would trigger an upgrade of the fire alarm system to provide code required voice evacuation.

III. PASSIOS SCHOOL

A. Fire Protection:

1. The building has two sprinkler services. One is located in a small janitor's closet across from the administration area near the main entrance. The other is in a storage room off of the Cafeteria. Both appear to have been originally installed in 1950.

B. Plumbing:

1. Domestic Water: The building water service enters into the storage room adjacent to the cafeteria and next to the kitchen. There are three sets of Boys and Girls rooms located in the facility near each wing. Individual sinks are located in a few areas. There is a drinking fountain located in the cafeteria.

2. Domestic Hot Water: The building has two large indirect hot water fired storage heaters located in the boiler room.

3. Sanitary: There are no plumbing plans available for review of t e sanitary drainage system. No information was obtained during the walk-through.

4. Natural Gas: The building is supplied with natural gas serving three hot water boilers located in the boiler room. The capacity of the gas service is at least 13,000 MBH based on the boiler input ratings.

5. Roof Drainage: The roof drainage system was not reviewed.

C. HVAC:

1. The heating system consists of three gas-fired hot water boilers, each with a circulation pump. Each boiler is from a different manufacturer and are different styles. The oldest is a Weil McLain cast iron, which has a dual fuel burner. The second boiler is a Buderus cast iron condensing boiler, and the third is a Viessmann stainless steel condensing boiler. The boilers are direct vented to the exterior wall with a draft fan installed in each gas vent. This boiler system also serves the existing high school building through a buried piping system. The units appear to be in good condition and are reportedly running well.

2. Space heating in the classrooms is provided by hot water fin-tube radiation. Unit ventilators are provided in the cafeteria in addition to fin tube radiation.

3. Classroom ventilation is provided by central heating and ventilation units and a classroom exhaust system.

4. The multipurpose room (gym/ auditorium) is ventilated by two heating and ventilating units located above the stairs on either side of the stage.

5. The building is not air conditioned. Some rooms have window air conditioning systems.

6. There is no mechanical outdoor air ventilation. The building is largely naturally ventilated using operable windows. However, not all areas comply with natural ventilation requirements.

D. Electrical:

1. This building has adequate capacity in both its normal power distribution system and backup generator power system to serve current and future building needs.

2. Lighting types vary throughout the building.

3. The building has a fire alarm system.

4. The building has a security system.

5. In general, the overall condition of the electrical systems and equipment are in good condition, and are adequate for the present programmed use of the building.

6. Lighting upgrades including controls are recommended to suit building use program changes within the building.

7. A change in the use group of this building with regard to adding a meeting hall would trigger an upgrade of the fire alarm system to provide code required voice evacuation for the meeting room.

IV. PRIMARY SCHOOL

A. Fire Protection:

1. The building has a sprinkler system. Due to its age, it is recommended that it be completely replaced.

B. Plumbing:

1. The building water plumbing systems are out of service and antiquated. Any use of the building would require a complete demo and replacement of the systems.

C. HVAC:

1. The building heating system consists of one oil-fired cast iron boiler. The buried oil tank has been removed; therefore the boiler is no longer functional. The boiler room has been completely flooded in the past. Compete replacement of the entire heating system is recommended, if the building is to be reoccupied.

D. Electrical

1. This structure has not been unoccupied for roughly 15 years, and has experienced water damage throughout the building.

2. Most of the lighting appears to be original equipment. Quantities of receptacles are minimal.

3. Lighting controls and manual fire alarm pull stations are mounted higher than today's code height of 48 inches.

4. The building has a fire alarm system, device locations and quantities are not per current code.

5. Based on the present condition of this structure, we recommend a complete removal and replacement of all electrical systems. This would include all electrical lighting, controls, receptacles, panelboards, and distribution equipment back to the electrical service entrance point.

6. We recommend a complete new fire alarm system.

V. CODE COMPLIANCE

The following items were noted as code deficiencies in the existing buildings or items that are anticipated to require updating as part of a renovation in order to meet the current building codes. Please note that all existing code deficiencies were not identified during the walk-through survey of the buildings. In general, unless the extent of renovations is significant, any modification to a system would require the affected portions of those systems to meet the building code in effect at the time.

A. Town Hall:

1. Fire Protection: Assuming that this building has an overall area that is less than 7,500 square feet, a sprinkler system would not be required.

2. Plumbing: At a minimum, the following would need to be considered: Fixtures older than Year 1990 would need to be upgraded to be of the water conserving type, all water piping would need to be replaced with lead-free type piping and any other incidentals to make these two items happen would also need to be addressed.

3. HVAC

   a. Verify outside ventilation air quantity is sufficient for building and space occupancies.

   a. Individual fan units for any new HVAC units should be selected for below 33,000 BTUH capacity each. A capacity greater than this will require the unit to be provided with 100% outside air economizer capability, requiring larger exterior louvers for intake and relief.

   b. Supply duct modifications would require upgraded thermal insulation.

4. Electrical

   a. Upgrade the fire alarm system to provide a voice system for the Meeting Hall.

   b. Provide code required emergency lighting and exit signage.

B. Ritter Building:

1. Fire Protection: Assuming that this building has an overall area that is less than 7,500 square feet, a sprinkler system would not be required.

2. Plumbing: At a minimum, the following would need to be considered: Fixtures older than Year 1990 would need to be upgraded to be of the water conserving type, all water piping would need to be replaced with lead-free type piping and any other incidentals to make these two items happen would also need to be addressed.

3. HVAC

   a. The boiler sidewall gas vents should terminate at least 3 feet above grade. Four or five feet is recommended.

   b. Verify the extent of spaces that comply with natural ventilation requirements and identify spaces that do not comply. Provide a mechanical ventilation system to serve areas that do not comply with natural ventilation requirements.

   c. Individual fan units for any new HVAC units should be selected for below 33,000 BTUH capacity each. A capacity greater than this will require the unit to be provided with 100% outside air economizer capability, requiring larger exterior louvers for intake and relief.

4. Electrical

   a. Upgrade the fire alarm system to provide a voice system for the Meeting Hall.

   b. Provide code required emergency lighting and exit signage.

C. Passios School:

1. Fire Protection: The existing sprinkler system would need to be upgraded and/or replaced as required to comply with current codes and as to provide complete coverage.

2. Plumbing: At a minimum, the following would need to be considered: Fixtures older than Year 1990 would need to be upgraded to be of the water conserving type, all water piping would need to be replaced with lead-free type piping and any other incidentals to make these two items happen would also need to be addressed.

3. HVAC

   a. Verify the extent of spaces that comply with natural ventilation requirements and identify spaces that do not comply. Provide a mechanical ventilation system to serve areas that do not comply with natural ventilation requirements.

   b. Individual fan units for any new HVAC units should be selected for below 33,000 BTUH (2.75 tons) capacity each. A capacity greater than this will require the unit to be provided with 100% outside air economizer capability, requiring larger exterior louvers for intake and relief. The total capacity of all such HVAC units cannot exceed 300,000 BTUH (25 tons). Additional capacity must be provided with air economizer capability.

   c. In general, the actual extent of work required to meet code will depend on the areas to be renovated and the use and occup ncy of the spaces affected.

4. Electrical

   a. Upgrade the fire alarm system to provide a voice system for the Meeting Hall.

b. Provide code required emergency lighting and exit signage.

D. Primary School:

1. Fire Protection: The existing sprinkler system would need to be upgraded and/or replaced as required to comply with current codes and as to provide complete coverage.

2. Plumbing: At a minimum, the following would need to be considered: Fixtures older than Year 1990 would need to be upgraded to be of the water conserving type, all water piping would need to be replaced with lead-free type piping and any other incidentals to make these two items happen would also need to be addressed.

3. HVAC

   a. The HVAC systems are not useable in the current condition. Any renovations or use of the building will require all new sys ems, which would need to meet the building codes in effect at the time of the renovations.

4. Electrical

   a. New fire alarm system.

   b. New lighting and controls.

   c. New emergency lighting.

STRUCTURAL - GENERAL

PRIMARY STRUCTURAL CODE ISSUES RELATED TO THE EXISTING STRUCTURES

If any repairs, renovations, additions or change of occupancy or use are made to the existing structures, a check for compliance with 780 CMR, Chapter 34 “Existing Structures” (Massachusetts Amendments to The International Existing Building Code 2009) of the Massachusetts Amendments to the International Building Code 2009 (IBC 2009) and reference code “International Existing Building Code 2009” (IEBC 2009) is required. The intent of the IEBC and the related Massachusetts Amendments to IEBC is to provide alternative approaches to alterations, repairs, additions and/or a change of occupancy or use without requiring full compliance with the code requirements for new construction.

The IEBC provides three compliance methods for the repair, alteration, change of use or additions to an existing structure. Compliance is required with only one of the three compliance alternatives. Once the compliance alternative is selected, the project will have to comply with all requirements of that particular method. The requirements from the three compliance alternatives cannot be applied in combination with each other.

The three compliance methods are as follows:

1. Prescription Compliance Method.
2. Work Area Compliance Method.
3. Performance Compliance Method.

Comment

The approach is to evaluate the compliance requirements for each of the three methods and select the method that would yield the most cost effective solution for the structural scope of the project. The selection of the compliance method may have to be re-evaluated after the impact of the selected method is understood and after analyzing the compliance requirements of the other disciplines, Architectural, Mechanical, Fire Protection, Electrical and Plumbing.

Since the existing buildings are un-reinforced masonry wall structures, the analysis and reinforcement of the existing structures would be governed by the requirements of the required of the Seismic Hazards section based on the percentage of work area compared to the aggregate area of the building.

Prescriptive Compliance Method

In this method, compliance with Chapter 3 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of this chapter.

Additions

Based on the project scope, the following structural issues have to be addressed:

- All additions should comply with the code requirements for new construction in the IBC.

- For additions that are not structurally independent of an existing structure, the existing structure and its addition, acting as a single structure, shall meet the requirements of the code for new construction for resisting lateral loads, except for the existing lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.

Alterations

- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations that would increase the design lateral loads or cause a structural irregularity or decrease the capacity of any lateral load carrying structural element, the structure of the altered building shall meet the requirements of the code for new construction, except for the existing lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.

WORK AREA COMPLIANCE METHOD

In this method, compliance with Chapter 4 through 12 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of these chapters.

In this method, the extent of alterations has to be classified into LEVELS OF WORK based on the scope and extent of the alterations to the existing structure. The LEVEL OF WORK can be classified into LEVEL 1, LEVEL 2 or LEVEL 3 Alterations. In addition, there are requirements that have to be satisfied for additions to the existing structure.

The extent of the renovations (includes Architectural, FP and MEP renovations) for this project will exceed 50 percent of the aggregate area of each of the buildings, thus the LEVEL OF WORK for this project would be classified as LEVEL 3 Alterations. This would require compliance with provision of Chapter 6, 7 and 8 of the IEBC. If the scope of the project includes new additions to the existing structure; this would trigger compliance with provisions in Chapter 10 of the IEBC.

Level 3 Alterations

- Any existing gravity, load-carrying structural element for which an alteration causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations where more than 30 percent of the total floor area and roof areas of a building or structure have been or proposed to be involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building complies with the full design wind loads as per the code requirements for new construction and with reduced IBC level seismic forces.

- For alterations where not more than 30 percent of the total floor and roof areas of a building are involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads at the time of the original construction or the most recent substantial alteration (more than 30 percent of total floor and roof area). If these alterations increase the seismic demand-capacity ratio on any structural element by more than 10 percent, that particular structural element shall comply with reduced IBC level seismic forces.
- For alterations that involve structural alterations to more than 30 percent of the total floor and roof area of a building within a 12 month period, the evaluation and analysis shall demonstrate that the altered building structure complies with IBC for wind loading and with reduced IBC level seismic forces.
- For alterations where more than 25 percent of the roof is replaced for buildings assigned to seismic design category B, C, D, E or F, all un-reinforced masonry walls shall be anchored to the roof structure and un-reinforced masonry parapets shall be braced to the roof structure.

Additions

- All additions shall comply with the requirements for the code for new construction in the IBC.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For additions that are not structurally independent of any existing structures, the existing structure and its additions, acting as a single structure, shall meet the requirements of the code for new construction in the IBC for resisting wind loads and IBC Level Seismic Forces (may be lower than loads from the Code for New Construction in the IBC), except for small additions that would not increase the lateral force story shear in any story by more than 10 percent cumulative. In this case, the existing lateral load resisting system can remain unaltered.

PERFORMANCE COMPLIANCE METHOD

Following the requirements of this method for the alterations and additions may be onerous on the project because this method requires that the altered existing structure and the additions meet the requirements for the code for new construction in the IBC.

PARTICULAR REQUIREMENTS OF COMPLIANCE METHODS

For our project, in order to meet compliance with one of the two compliance methods “Prescriptive Compliance Method” or the “Work Area Compliance Method”, we have to address the following:

Prescriptive Compliance Method

Additions

The proposed additions would be designed structurally independent of the existing structures, thus, would not impart any additional lateral loads on the existing structure.

If the proposed alterations are such that the alterations increase the design lateral loads on the existing building or cause any structural irregularity of decrease the lateral load carrying capacity of the building, the structure of the altered building shall meet the requirements of the Code for New Construction in the IBC.

If the proposed additions increase the design gravity load on portions of the existing roof members, these members would have to be reinforced and this incidental structural alteration of the existing structures would have to be accounted for in the scope of the alterations to the existing schools and would trigger requirements for alterations.

Alterations

Alterations that would increase the design gravity loads by more than 5 percent on any structural members would have to be reinforced.

If the proposed alterations of the structures increase the effective seismic weight on the existing structures due to the greater snow loads from the drifted snow against any proposed additions, or, by addition of equipment on the roof, the increase of the effective seismic weight from the drifted snow and the equipment would require that the existing lateral load resisting system comply with the requirements of the code for new construction in the IBC and it would increase the demand-capacity ratio on certain structural elements of the existing lateral load resisting system.

Work Area Compliance Method

Level 3 Alterations

If the proposed structural alterations of an existing structure are less than 30 percent of the total floor and roof areas of the existing structure, we have to demonstrate that the altered structure complies with the loads applicable at the time of the original construction and that the seismic demand-capacity ratio is not increased by more than 10 percent on any existing structural element. Those structural elements whose seismic demand-capacity ratio is increased by more than 10 percent shall comply with reduced IBC level seismic forces. The percentage increase in seismic demand-capacity ratio on any particular structural element from the added snowdrift load against the proposed addition would be fairly low, thus, this would not have any major impact on the existing lateral load resisting system, though we would have to verify that the increase in seismic demand-capacity ratio on any of those particular structural elements is not greater than 10 percent.

If the proposed structural alterations of an existing structure exceed 30 percent of the total floor and roof areas of an existing structure, we have to demonstrate that the altered structure complies with the IBC for wind loading and with reduced IBC level seismic forces.

The seismic design category (SDC) of the existing structures is ‘B’; thus, the replacement of the existing roofs would trigger anchorage of un-reinforced masonry walls to the roof structures and bracing of un-reinforced masonry parapets to the roof structures. All un-reinforced masonry walls in the existing schools will have to be identified. These un-reinforced masonry walls are required to be anchored to the roof structures. Since there are no existing un-reinforced masonry parapets, this requirement does not have any impact on the structural scope of the project.

Additions

The proposed additions would be designed structurally independent of the existing structures, thus, they would not impart any additional lateral loads on the existing structures.

SUMMARY

The compliance requirements of the two methods, in most respects, are very similar. The Work Area Compliance Method would trigger anchorage of un-reinforced masonry walls, if re-roofing of the existing structures is included as part of the scope for this project. The Prescriptive Compliance Method would require that the existing lateral load resisting systems meet the requirements of the code for new construction of the IBC, even for small increases of design lateral loads. We are required to comply with requirements of Seismic Hazards (Sections 303.7 and 807.5) for the anchorage of masonry walls where the work area exceeds 50% of the aggregate area of the building. Depending on the scope of the project, an appropriate compliance method can be selected.

It is likely, if the proposed renovations are extensive, that the existing structures may be required to be updated to meet the requirements for the Code of New Construction which may require additions of masonry shear walls or structural steel braces into the structures.

TOWN OF LUNENBURG CAPITAL ASSESTMENT – STRUCTURAL
October 26th, 2015
Prepared by: Marshall Puffer, Engineers Design Group

TOWN HALL

Basis

This description is based on a walkthrough of the building on October 15th, 2015, renovation plans from Hammer Kiefer and Todd, dated April 7th, 1989 and an inspection report from McKenzie Engineer Company, dated May 29th, 2013. We did not remove any finishes or take any measurements during our visit so our understanding of the structure is limited to our observations and the above mentioned drawings/reports.

Building Description

The building is a two story post and beam wood building with a stone foundation that was originally constructed as a barn in the early 1800's. The post and beam framing is constructed with pegged connections and the posts in the basement sit on small stone/concrete pedestals. The roof consists of wood trusses supported by the exterior walls with small wood beam infill framing and wood roof decking. The roof trusses also support a large attic area. There is a clock town through the roof that had added steel support through the 2nd and 1st floors to the basement. Outside of the building there is a small wood porch at the first floor and a metal emergency stairway leading to the second floor.

Existing Conditions

There are many elements that are in need of structural repair. The wood posts in the basement columns have evidence of rot at the base and many are not fully supported by the stone pedestals. There is evidence of leaking through the stone foundation wall. Many floor joists appear to be deflecting most likely to added load on the support floor. Some pegs in the connections appeared to be missing. Beams and posts have been added in many locations in the basement, however they do not appear to be stable as there is no mechanical connection between the added structure and the existing. There is evidence of water damage in some of the members in the attic area. The framing supporting the roof decking appears to be undersized per today's building code. There is significant rot in a large wood beam on the front gable end that appears to have greatly compromised this member. The clock tower shows signs of water damage/weathering, but no evidence of rot.

RITTER BUILDING

Basis

This description is based on a walkthrough of the building on October 15th, 2015. There were no existing drawings available at this time. We did not remove any finishes or take any measurements during our visit so our understanding of the structure is limited to our observations.

Building Description
The building is a masonry and wood building built in 1909 with an addition built in 1963. The foundation is a mix of brick and stone with exterior brick bearing walls. The roof of the original building is wood roof decking supported by wood roof trusses, wood posts and sloping wood joists supported by the exterior brick walls. The attic level is supported by wood joists spanning between wood posts trusses and the exterior brick bearing walls. While no access to the 1963 structure was available, it is believed that it is of similar construction to the original building.

Existing Conditions
Overall the structure appears to be performing well. There is no evidence of major cracking in the exterior bearing walls nor the foundation. There are some areas of brick and stone that need re-pointing. There are no signs of heaving or major cracking noticed in the slab-on-grade. There is evidence of minor leaking in the attic area, but it does not appear to have rotted any of the structural members. Note that observations of the 1963 building were made on the exterior only.

PRIMARY SCHOOL

Basis
This description is based on a walkthrough of the building on October 15th, 2015. We did not remove any finishes or take any measurements during our visit so our understanding of the structure is limited to our observations.

Building Description
The building is two story a masonry exterior bearing wall structure with a concrete and masonry foundation. The second floor is supported by a cast-in-place concrete slab supported by interior and exterior masonry bearing walls. The roof structure is believed to be a combination or metal roof decking supported by steel beams supported by steel lally columns (over the gymnasium) and metal roof decking supported by steel roof trusses supported by masonry bearing walls throughout the rest of the structure.

Existing Conditions
The structure has been abandoned for many years and shows evidence of disrepair. The exterior lintels at the windows all show evidence of rusting and are corroding in some spots. The exterior brick shows signs of minor cracking and water damage. The interior concrete slabs have heaved and cracked in many places. The second floor also shows heaving due to failure in supporting masonry walls. Major water damage from missing roofing over the gymnasium was viewed. It is unknown if this compromised any structure. Note that we did not entire the attic space to view the structure supporting the roof.

PASSIOS SCHOOL

Basis
This description is based on a walkthrough of the building on October 15th, 2015 and the existing drawings dated March 6th, 1950 (revised April 25th 1951). There is an addition built in 1976. We did not remove any finishes or take any measurements during our visit so our understanding of the structure is limited to our observations and the existing drawings.

Building Description

The building is a primarily a one-story structure with a small second story area and a two-story open gymnasium. The structure is steel framed with wide flange members supported by steel columns and exterior bearing walls on concrete spread footings and exterior foundation walls, respectively. The exterior of the building is mostly brick with large windows supported by the concrete foundation wall. The roof decking is wood planks. There are steel framed skylights throughout the corridor areas. The first floor is slab-on-grade with no basement area noted.

Existing Conditions

Overall the structure appears to be performing well. The areas of exposed steel and roof decking appeared to be in good condition with no evidence of leaks or rot/corrosion. There are minor cracks in the masonry in the boiler room area. All other masonry appeared to be in good condition. No issues were seen in the steel supporting the skylights. No major cracks or heaving was present in the slab-on-grade. Note that we did not remove any ceilings to view the roof structure.

PARCEL_ID: **162/060.0-0068-0000.0** MAP **060.0** BLOCK **0068** LOT **0000.0** PARCEL ADDRESS: **25 MEMORIAL DR** as of: 1/25/2018

PARCEL INFORMATION

Owner#1: LUNENBURG, TOWN OF
Owner#2:
Address#1: SELECTMEN
Address#2:
LUNENBURG MA 01462

Use-Code:	930	Sale Price:	1	Book:	1111
Tax Class:	E	Sale Date:	11111901	Page:	111
Tot Fin Area:	5632	Sale Type:	L	Cert/Doc:	
Tot Land Area:	1.79	Sale Valid:	N		
		Grantor:			
Inspect Date:	612212016	Road Type:	T	Exempt-BIL%:	
Meas Date:	612212015	Rd Condition:	p	Resid-BIL%:	
Entrance:	X	Traffic:	L	Comm-BIL%:	
Collect ID:	RB	Water:	WD	Indust-BIL%:	
Inspect Reas:	B	Sewer:	S2	Open Sp-BIL%:	

COMMERCIAL SECTIONS/GROUPS

Section:		Section:		Section:	Section:
ID	Use-Code	ID	Use-Code	ID Use-Code	ID Use-Code
101	369	201	369		
Category:	7	Category:	7	Category:	Category:
Grnd-Fl-Area:	4132	Grnd-Fl-Area:	1500	Grnd-Fl-Area:	Grnd-Fl-Area:
Story Height:	1	Story Height:	2	Story Height:	Story Height:
Bldg-Class:	D	Bldg-Class:	D	Bldg-Class:	Bldg-Class:
Yr-Built:	2005	Yr-Built:	2005	Yr-Built:	Yr-Built:
Eff-Yr-Built:	2005	Eff-Yr-Built:	2005	Eff-Yr-Built:	Eff-Yr-Built:
Cost Bldg:	497500	Cost Bldg:	664000	Cost Bldg:	Cost Bldg:

Groups (1):

Id	Cd	B-Fl-A	Firs	Unt
1	170	4132	1	1

Groups (1):

Id	Cd	B-Fl-A	Firs	Unt
1	420	1500	2	1

LAND INFORMATION

NBHD CODE: 3 **NBHD CLASS:** **ZONE: RA**

Seg	Type	Code	Method	Sq-Ft	Acres	Influ-11213	Value	Class
	p	930	S	77972	1.79	N	103593	

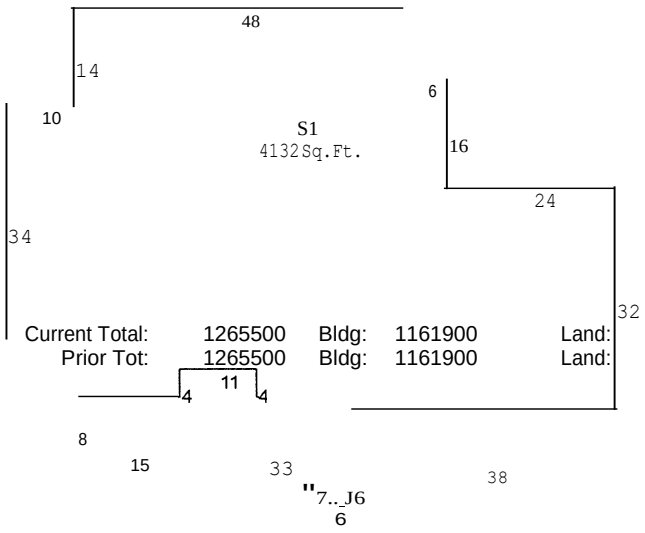
DETACHED STRUCTURE INFORMATION

Str	Unit	Msr-1	Msr-2	E-YR-Blt	Grade	Cond	%Good	PIFIEIR	Cost	Class
SE	S	8	10	2015	A	A	*11199*		400	3

VALUATION INFORMATION

Current Total:	1265500	Bldg:	1161900	Land:	103600	MktLnd:	103600
Prior Tot:	1265500	Bldg:	1161900	Land:	103600	MktLnd:	103600

SKETCH



PHOTO

25 MEMORIAL DR

APPENDIX C

VISUAL HAZARDOUS MATERIALS SURVEY

VERTEX®

February 16, 2018

Ms. Heather R. Lemieux, Town Manager
Town of Lunenburg
17 Main Street
P.O. Box 135
Lunenburg, MA 01462

Reference: **Hazardous Materials Visual Assessment**
Eagle House Senior Center
25 Memorial Drive
Lunenburg, MA 01462
VERTEX Project No. 48237

Dear Ms. Lemieux:

The Vertex Companies, Inc. (VERTEX) is pleased to provide you with this letter report summarizing the visual hazardous materials assessment performed at the Eagle House Senior Center (the Site).

The Eagle House is a two-story wood framed building reportedly constructed in 1740. The site building was moved for the site of original construction in the late 1930's. The original site building was extensively renovated in 1988. In 1998, an approximate 4,000 square foot addition to the original section was reportedly constructed. Interior finish materials include carpet flooring or various colored tile flooring and painted wallbopoard walls and ceilings. Exterior finish materials include a painted wood clapboard with an asphalt shingled roof on the original section and vinyl siding with an asphalt shingled roof on the addition section. The site building is currently utilized as a senior center and office spaces. Based on discussions with the site contact there are no prior survey reports for review.

The following sections identify suspect asbestos-containing materials (ACMs), suspect lead based painted (LBP) surfaces, and regulated materials/universal wastes identified during the assessment.

Suspect Asbestos Containing Materials (ACMs) Assessment

Based on the age of the original site building (1740) it is likely that ACMs may be present. However, based on discussions with the site contact the original section had undergone an extensive renovation in 1988. Suspect ACMs observed or assumed to be present during the assessment included:

- Various Colored Floor Tile and Associated Mastics
- Carpet Adhesive
- Vinyl Covebase and Adhesive
- Wall Board
- Joint Compound
- Textured Ceiling Material
- Various Patterned Accoustical Ceiling Tile
- Roofing Materials (i.e. asphalt shingles, roofing paper, etc.)

At the time of the assessment, the suspect ACMs identified were observed to be in good condition. Please refer to Attachment A which includes photographic documentation of the suspect ACMs identified during the assessment.

Suspect Lead Based Painted Surfaces Assessment

Based on the age of the site building (1740) it likely that LBPs are present at the 1740s section of the site building. Various colored painted surfaces were observed to be in good condition on the interior as well as exterior. Please refer to Attachment A which includes photographic documentation of the suspect LBP surfaces identified during the assessment.

Regulated Materials/Universal Waste Assessment

The following regulated materials/universal wastes were identified during the visual assessment:

- Fluorescent Light Bulbs
- Poly-Chlorinated Biphenyl (PCB)/Non-PCB Light Ballasts
- Wall Mounted AC Units

Recommendations

Based on the visual assessment conducted, VERTEX offers the following recommendations:

Prior to any renovation or demolition activities, sampling of suspect ACMs that may be disturbed would need to be conducted in applicable areas to determine asbestos content. A comprehensive ACM survey is required to be conducted to comply with the Environmental Protection Agency (EPA) National Emission Standard for Hazardous Air Pollutants (NESHAPs) 40 CFR Part 61. Until these materials have been sampled and determined to be non-asbestos containing, these materials should be managed in place as presumed asbestos-containing materials (PACMs).

The General Contractor is required to comply with all applicable Federal, Commonwealth and local Regulations concerning lead-based paint located on surfaces that will be impacted. The General Contractor is required to ensure the protection of workers performing any related demolition work that will affect lead painted surfaces as well as protecting the public and the environment from exposure to lead dust. It is the General Contractor's responsibility to ensure that all applicable regulations are followed. This may include but may not be limited to air quality testing, medical screening of workers, dust barriers, testing of waste for disposal requirements, etc. In addition, composite samples of painted surfaces, including wood, require testing by the Toxicity Characteristics Leaching Procedure (TCLP) for waste classification in accordance with disposal requirements of the EPA. The General Contractor is required to comply with all applicable Federal, Commonwealth and local Regulations concerning lead-based paint located on surfaces that will be affected.

Identified regulated materials/universal wastes are required be properly packaged, removed and disposed/recycled in accordance with federal, state and local regulations if renovation and/or demolition is planned to disturb.

Estimated Costs

- Preparation of an Asbestos and Lead Operations and Maintenance Plan: $800.00
- Comprehensive Pre-Renovation/Demolition Survey: $4,500.00
- Abatement of Identified/Assumed ACMs and Regulated Materials: $35,000.00*
- Environmental Consulting/Clearance Inspections/Monitoring: $10,000.00*

***The Estimated Costs for Abatement and Consulting provided above will be dependent on the findings of a Comprehensive Pre-Renovation/Demolition Survey as well as the Selected Contractor schedule.*

Limitations

Professional opinions presented in this summary letter are based on information made available to VERTEX either by review of data provided by others or data gained by VERTEX personnel.

Conditions described in this summary letter were observed at the time of the inspection, unless otherwise stated.

VERTEX observed only the conditions and locations described in the summary letter at the time indicated.

This survey was limited to a visual assessment only and should not be utilized for renovation and/or demolition activities.

Please do not hesitate to contact us at your convenience, should you have any questions or comments regarding this summary letter or our recommendations.

Sincerely,
The Vertex Companies, Inc.

Jason Mohre
Senior Project Manager

Attachment:
Photographic Documentation

ATTACHMENT A

Photo #1: Photograph depicts general view of Side A of the Site Building.

Photo #2: Photograph depicts general view of Side B of the Site Building.

Photo #3: Photograph depicts general view of Side B of the Site Building.

Photo #4: Photograph depicts general view of Side C of the Site Building.

Photo #5: Photograph depicts general view of Side D of the Site Building.

Photo #6: Photograph depicts general view of First Floor Interior of the Original Section .

Photo #7: Photograph depicts general view of the Textured Ceiling within the 1st Fl. Section of the Original Site Building .

Photo #8: Photograph depicts general view of the Attic Area in the Original Site Building .

Photo #9: Photograph depicts general view of the Lobby/ Lounge Area in the Addition Section.

Photo #10: Photograph depicts general view of 12” Floor Tile within the Kitchen Area of the Addition Section.

Photo #11: Photograph depicts general view of Gas Fired Boiler in Basement of the Original Section.

Photo #12: Photograph depicts general view of Paint and Adhesive Storage within Basement of the Original Section .

APPENDIX D

STAFF QUALIFICATIONS

Brian Dunn, AIA
Forensic Architect

[bdunn@vertexeng.com / 203-517-4917]

Expertise:

Loss Control
Construction Defect
Owner's Representation
Architecture
Litigation Support & Expert Testimony (Construction)
Property Claim - Personal Property Condition Assessments
Litigation Support & Expert Testimony
Consultation
Builder's Risk Claim
Design Plans
Premise Liability Claim

Education/Training:

Architecture, Boston Architectural College, B.Arch, 2008

Biography:

Mr. Dunn possesses over 25 years of experience in the construction and design industries with an emphasis on preventing and solving issues related to the built enviornment. As a design professional Mr. Dunn has garnered expertise in all phases from the initial concept generation to the delivery of the completed building, including post occupancy analysis. He has been responsible for the successful coordination of the various disciplines that make up the finished product including site work.

Mr. Dunn provides valuable services to clients by performing on site inspections and construction document reviews as it pertains to litigation matters and pre-construction loss prevention reviews. Through his use of modern technology and his knowledge of myriad construction types and materials he is able to deliver accurate analyses and provide forward thinking solutions for clients that encompass their specific needs. He is adept at finding the source of problem and then providing the appropriate response that yields the best outcomes for clients.

Mr. Dunn's background in the construction and utility industries prior to him becoming an architect has given him experience with the technical aspects of construction not typically found in the architecture profession. It is this background that has led him to be proficient in the detailing of buildings and his ability to produce solutions to problems that arise during the course of construction in a timely manner as neccessitated once projects have broken ground. In post construction analysis he is able to examine conditions from large scale proportions down to minute details, interpret those findings, and communicate to clients the scope of the issue and how best to remedy that particular situation to the satisfaction of the client.

Licenses/Certifications:

Registered Architect, CT, 13888
Registered Architect, MD, 18019
Registered Architect, NY, pending
NCARB

Associations:

American Institute of Architects- AIA

Chamber of Commerce Ridgfield CT Advisory Council (2016)

Eric Nelson, PE, LEED AP, CEA
Vice President, Property Condition Assessments

[enelson@vertexeng.com / 484-487-2727]

Expertise:

Indoor Air Quality
Construction Due Diligence
Loan Monitoring
Property Condition Assessments
Construction Estimating
LEED Assessment & Certification
Litigation Support & Expert Testimony (Construction)
Civil Engineering
Civil/Structural
Engineering Geology
Structural
Green Building
Energy Certified Efficiency Auditing
Compliance Audits
PCA

Education/Training:

B.S., Civil Engineering, University of Illinois, 1989
Shallow Foundation Design, University of Missouri-Rolla, 1992
Deep Foundation Design, University of Florida, 1994
Environmental Chemistry, Illinois Institute of Technology, 1996
Earth Retaining Structures, University of Delaware, 2004

Biography:

Mr. Nelson is a Vice President directing the Property Condition Assessment and Energy Savings Investigation practices at VERTEX. He has over 27 years of experience with construction-related services such as construction materials testing and inspection, Geotechnical engineering, foundation design and analysis and design of pavement systems. Since 1997, he has been extensively involved in the performance, review and management of Property Condition Assessments (PCAs) for projects of variable size and complexity throughout North America. In addition, he has provided Construction-Monitoring services to evaluate construction progress, and approve or deny contractor payment requests on multiple projects in the northeast. He has also managed a number of large scale projects involving pre- and post-construction condition assessments of structures to monitor and assess damage from construction-related vibration. Mr. Nelson has also directed VERTEX's building analysis program with respect to energy usage and savings strategies for projects at various locations in North America.

Mr. Nelson has been involved in over 3,000 construction and assessment projects during his career, with extensive involvement in new construction, remodeling and re-development, property acquisition, lender due diligence and financial needs assessments and development of replacement reserves for numerous property types.

Licenses/Certifications:

Professional Engineer (PE) – Civil, DE, 10924
Professional Engineer (PE) – Civil, IL, 62.049214
Professional Engineer (PE) – Civil, IN, PE19500266
Professional Engineer (PE) – Civil, MD, 27232
Professional Engineer (PE) – Civil, NJ, 24GE03972000
Professional Engineer (PE) – Civil, NY, 754035
Professional Engineer (PE) – Civil, PA, PE050115E
Professional Engineer (PE) – Civil, WI, 31086-6
Professional Engineer (PE) – Civil, NC, 041964
Professional Engineer (PE) - Civil, AZ, 62072
LEED® AP
Certified Energy Auditor
Certified Building Inspection Engineer (BIECI)
Photovoltaic Entry Level Certificate of Knowledge
40 Hour OSHA Hazardous Waste Op. Training
Ground Source Heat Pump Loop Installer

Associations:

Delaware Valley Green Building Council (DVGBC)

Association of Energy Engineers (AEE)

Publications:

Nelson, Eric, and Shaw, Michael and Crelease, Charles, "Changes to Environmental Due Diligence – EPA's Draft All Appropriate Inquiry Rule" – NJPA Real Estate Journal, April 23, 2004

Nelson, Eric, "Property Condition Assessments – Going Beyond ASTM" – NJPA Real Estate Journal, March 11, 2005

Nelson, Eric, "Evaluating Sustainable Solutions" – Modern Contractor Solutions, October 2011

Jason Mohre
Senior Project Manager

[jmohre@vertexeng.com / 6016]

Expertise:

Asbestos
Indoor Air Quality
Industrial Hygiene
Investigations & Remediation
Lead
Mold
O&M Program
LEED Assessment & Certification
Environmental
Green Building
Compliance Audits
Database Review
Environmental Portfolio Reviews
Peer Review
Phase I ESAs
Phase II LSI
Transaction Screen
Claim Investigation
Biology
Environmental Health & Safety
Environmental Permitting
Groundwater & Soil Characterization
Hazardous Materials/Waste
PCB
Remedial Design & Feasibility Studies
Remediation & Construction Management
Site Characterization
UST Removal
Vapor Intrusion Investigations & Remediation
Water & Wastewater
Sustainability Consulting

Education/Training:

A.S., Environmental Technology, Cape Cod Community College (CCCC)
B.A., Earth & Geographical Studies, University of Massachusetts
Hydrogeology Certificate, UMASS Boston
Water Supply Certificate, CCCC/Massachusetts Maritime Academy (MMA)
Coastal Zone Management Certificate, CCCC
Wastewater Technology Certificate, CCCC/MMA
Geographical Information Systems Certificate, CCCC/MMA

Special Training:

NIOSH 582 Equivalent: Air Sampling & Analysis for Asbestos Training
American Industrial Hygiene Association, PAT Program Participant
Institute for Environmental Education Asbestos Management Planner Training
Institute for Environmental Education, Asbestos Project Monitor Training
Institute for Environmental Education Asbestos Inspector Training

Biography:

Mr. Mohre has over 15 years of experience in the environmental industry. Field expertise includes Asbestos Inspections, Indoor Air Quality Assessments, Hazardous Material building surveys and Water Intrusion/Mold Cause and Origin Investigations as well as on-site project management related to remedial action oversight, Phase I Environmental Site Assessments (ESAs), Commercial Property Transaction Screens, and Phase II Subsurface Investigations.

Mr. Mohre is currently responsible for managing industrial hygiene projects involving asbestos abatement, mold remediation and indoor air quality. Management tasks include: asbestos inspections; indoor air quality assessments; site investigations; cause and origin determinations; delineation of contaminated media; development of remediation strategies; and oversight and management of contractors. He also provides comprehensive investigative reports, remedial protocols, and operational plans.

Mr. Mohre also works closely with the other divisions of the VERTEX Companies which include environmental site investigations for insurance claims, property development/redevelopment, and/ or property transactions.

Licenses/Certifications:

Asbestos Inspector, RI, AAC-0828IS, expire January, 2013
Asbestos Inspector, MA, AI000262, expire January, 2013
Asbestos Inspector, NH, AI 000370, expire January, 2013
Asbestos Management Planner, NH, AM 000370, expire January, 2013
Asbestos Management Planner, MA, AP000080, expire January, 2013
Asbestos Project Monitor, MA, AM000144, expire January, 2012
8 Hour OSHA HAZWOPER Refresher Certification, Annual
OSHA 40 Hour HAZWOPER Training

OSHA 10

Matthew Quigley, PE
Forensic Engineer

[mquigley@vertexeng.com / 781.952.6070]

Highlights:

Professional Engineer (PE), Structural
Passed 16 HR. Structural Engineering (SE) Exam
B.S. Civil Engineering

Expertise:

Civil/Structural
Structural
Damages
Design Plans
Property Claim - Commercial
Property Claim - Personal

Education/Training:

B.S., Civil Engineering, Northeastern University, 2010

Special Training:

SEAMASS - Wind and Waves
SEAMASS - Structural Forensics: Lessons Learned

Biography:

Mr. Quigley has a strong background in structural engineering analysis and design, building envelope review and design and construction administration services. He is a licensed engineer in 5 states and has experience with consultation and design of concrete, steel, masonry, and wood structural systems in residential and commercial applications. He is experienced in state and federal building codes and implementation through forensic analysis of failures and design of new structures.

He has experience in the evaluation, design and rehabilitation of historic structures including structural reinforcement, building envelope renovation and building code upgrades. His responsibilities include evaluating historic materials, designing to match existing material strengths and aesthetics, coordinating with historic commission requirements, implementing building code upgrades for historic structures and review and approval of construction materials and implementation.

Mr. Quigley uses these skills and experience as an integral member of the forensic engineering division within VERTEX to provide cause and origin investigations, damage assessments, and repair and design recommendations for structural and building envelope components on residential and commercial applications.

Licenses/Certifications:

Professional Engineer (PE) – Structural, MA, 51620
Professional Engineer (PE) – Structural, CT, 31035
Professional Engineer (PE) – Structural, NH, 15152
Professional Engineer (PE) – Structural, VT, 123335
Professional Engineer (PE) – Structural, RI, 11959
Professional Engineer (PE), NY, 097406
OSHA 10
Structural Safety Assessment Program Inspector, CA, 74255

Associations:

- American Concrete Institute (ACI)
- American Society for Testing and Materials (ATM)
- American Institute of Steel Construction (AISC)

Presentations:

Presentation and training: ***"Expansion and Control Joints"*** as part of

Philip Russo, R.A.
Project Manager

[prusso@vertexeng.com / 617-830-1542]

Highlights:

Registered Architect MA Lic #9077

Expertise:

PCA
Construction Defect
Civil Engineering
Structural
Architecture
Property Claim - Personal
Civil/Structural
Construction Due Diligence
Property Condition Assessments
Peer Review
Analysis
PCS
Consultation
Design Plans

Education/Training:

B. Arch, Bachelor of Architecture Degree, Boston Architectural College, Boston, MA, 1984
Diploma in Architectural and Civil Design, Porter School of Design, Rocky Hill, CT

Biography:

Mr. Russo is a Massachusetts Registered Architect with over 32 years of experience. He has extensive knowledge related to assessment, architectural design, code review, construction documents, specifications, project costs, project forecasting, and construction administration. He has worked on a wide range of building types, including public governmental buildings such as libraries and K-12 school buildings, as well as hospitals and healthcare facilities and other multi-functional buildings of numerous types. Currently, Mr. Russo serves as Project Manager at VERTEX.

Since 2002, he has been extensively involved in the development and review of Property Condition Assessments (PCAs), Property Condition Screens (PCS's), Mold Investigations, review of construction documents for constructability and other due diligence projects for projects of variable size and complexity throughout North America, Europe, Russia and India.

As Project Manager at VERTEX, Mr. Russo's responsibilities include building/site assessment, technical report writing, coordination of external contractors, ADA compliance, municipal research, cost estimating, capital reserve planning and engineering data analysis. Additional responsibilities include peer review and mentoring of junior staff.

Licenses/Certifications:

Registered Architect, MA, MA#9077
Roofing 101 Module 1 : The Basics
Roofing 101 Module 2 : Roof Systems Basics
Roofing 101 Module 3 : Low-slope Roof Assemblies
Roofing 101 Module 4 : Steep-slope Roof Assemblies
Roofing 101 Module 5 : Roof Flashings and Accessories

Scott Katzer, PE
Division Manager / Senior Forensic Engineer

[skatzer@vertexeng.com / 954-626-8893]

Highlights:

Mechanical Engineering Degree
Professional Engineer
Expert with many building related components
Nationwide Due Diligence Experience
Registered Professional Engineer in 12 States
Performed Numerous Forensic Investigations
Expert Consultant, Litigation Experience
Construction Defect
Nationwide Property Condition Assessments Expertise
Project Management Experience Nationwide
Experience in Hospital Facilities
MEP Systems

Expertise:

Litigation Support & Expert Testimony (Insurance Support)
Indoor Air Quality
Mold
PCA
Construction Defect
Construction Management
Catastrophe Claim
Contract Claim
Owner's Representation
Electrical Consulting
Litigation Support & Expert Testimony (Construction)
Commissioning
Construction Claim Analysis & Prep
Property Claim - Personal
Reconstruction/Restoration
Tenant Improvement
Mechanical
Feasibility Studies
Construction Due Diligence
Property Condition Assessments
Litigation Support & Expert Testimony (Air Quality)
Energy Management System Design, Installation & Support
Peer Review
Claim Investigation
Vapor Intrusion Investigations & Remediation

Education/Training:

B.S., Mechanical Engineering, Northeastern University, Boston, MA, 1992

Special Training:

Florida Wind Mitigation Inspection Training
Water Vapor Diffusion
Florida Professional Engineering Rules & Ethics
Concrete Deficiencies, Causes & Evaluation
Exterior Insulation & Finish Systems (EIFS)
Property Claim Training
Seismic Damage
Building Envelope & Stucco
Vibration Damage
Construction Defect Disputes & Litigation
National Association of Fire Investigators
Role of Cool Thermal Storage in Sustainable Design
Florida Wind Mitigation Inspection

Biography:

Mr. Katzer is a Senior Engineer and Florida Division Manager. He earned a B.S. in Mechanical Engineering from Northeastern University and is a licensed professional mechanical engineer, Certified Fire & Explosion Investigator (CFEI) and a Haag certified residential roof inspector.

Mr. Katzer's engineering experience encompasses a wide variety of building issues. He is an experienced mechanical engineer in the evaluation and design of healthcare, institutional, commercial, residential and industrial technically complex projects, as well as the investigation and analysis of building related components including heating, ventilating and air conditioning (HVAC), electrical, plumbing, fire protection, building envelope and indoor air quality (IAQ) issues. He is also experienced in the evaluation of buildings relating to identifying and mitigating the risks associated with hurricanes and similar catastrophic events.

Licenses/Certifications:

Professional Engineer (PE) - Mechanical, FL, 52678
Professional Engineer (PE) - Mechanical, GA, 26933
Professional Engineer (PE) - Mechanical, MA, 46899
Professional Engineer (PE) - Mechanical, CA, 33806
Professional Engineer (PE) - Mechanical, IL, 062060482
Professional Engineer (PE) - Mechanical, TX, 101536
Professional Engineer (PE) - Mechanical, NC, 035481
Professional Engineer (PE) – Mechanical, NY, 092091-1
Professional Engineer (PE) - Mechanical, CT, 30928
Professional Engineer (PE) - Mechanical, NV, 023556
Professional Engineer (PE) - Mechanical, CO, PE.0050936
Professional Engineer (PE) - Mechanical, NJ, 24GE05277500
Certified Fire & Explosion Investigator (CFEI), National, 20278-11429
Haag Certified Inspector – Residential Roofs , HCI #201302562

Fire and Explosives
Fire - Origin & Cause
Damages
PCS
Other
Invoice Review
Litigation Support & Expert Testimony
Consultation
Subrogation
Design Plans
Product Liability Claim
Property Claim - Commercial
Infrared Thermography
Survey

OSHA 10, 360training.com

Associations:

American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), No. 8160171

International Association of Fire Investigators member, No. 1310698

Presentations:

June 2015: Presented "From 5 to 5000 gallons, What to Look for in a Brewery Space" to the American Homebrewers Association, National Conference in San Diego, California.

June 2015/May 2014: Presented "Water Vapor Diffusion" to The Vertex Companies and Engle Martin & Associates in Fort Lauderdale, Florida.

April 2013/October 2012: Presented "Living with Engineers" to North Broward Preparatory School in Coral Springs, Florida and Olympic Heights High School STEM Program Board of Directors in Boca Raton, Florida.

June 2008: Presented "Hurricane Mitigation for Mission Critical Facilities" at the 7x24 Exchange Conference in Boca Raton, Florida.